RDR-GX7

RMT-D203P

SERVICE MANUAL

AEP Model
UK Model

Self Diagnosis Supported model

VIDEO/R/RW

DVD+ReWritable

COMPACT disc DIGITAL AUDIO

VIDEOPlus+

SPECIFICATIONS

System

- Laser
  - Semiconductor laser
- Channel coverage
  - PAL/SECAM (B/G, D/K, I, L)
  - VHF: E2 to E12, R1 to R12, F1 to F10, Italian A to H, Ireland A to J, South Africa 4 to 13
  - UHF: E21 to E69, R21 to R69, B21 to B69, F21 to F69
  - CATV: S01 to S05, S1 to S20, France B to Q
  - HYPER: S21 to S41

The above channel coverage merely ensures the channel reception within these ranges. It does not guarantee the ability to receive signals in all circumstances.

Video reception: Frequency synthesizer system
Audio reception: Split carrier system

- Aerial out
  - 75-ohm asymmetrical aerial socket
- Timer
  - Clock: Quartz locked
  - Timer indication: 24-hour cycle (digital)
  - Power back-up duration: 1 hour
- Video recording format
  - MPEG Video
- Audio recording format/applicable bit rate
  - Dolby Digital/2 ch, 256 kbps

Audio characteristics (Playback)

- Frequency response
  - DVD (PCM 96 kHz): 4 Hz to 44 kHz (±1.0 dB)/DVD (PCM 48 kHz): 4 Hz to 22 kHz (±0.5 dB)/CD: 4 Hz to 20 kHz (±0.5 dB)
- Signal-to-noise ratio (S/N ratio)
  - DVD: 115 dB (LINE 2 OUT (AUDIO L/R) jacks only)
- Harmonic distortion
  - DVD: 0.002 %
- Dynamic range
  - DVD: 110 dB/CD: 100 dB
- Wow and flutter
  - DVD: Less than detected value (0.001% W PEAK)

Audio characteristics (Recording/Playback)

- Frequency response
  - DVD (Dolby Digital 48 kHz): 10 Hz-20 kHz (±1.0 dB)
- Signal-to-noise ratio
  - DVD: 96 dB
- Harmonic distortion
  - DVD: 0.004 %
- Dynamic range
  - DVD: 96 dB

The signals from LINE 2 OUT (AUDIO L/R) jack are measured. When you play PCM sound tracks with a 96 kHz sampling frequency, the output signals from the DIGITAL OUT (OPTICAL or COAXIAL) jack are converted to 48 kHz sampling frequency.

Inputs and outputs

- LINE 2 OUT
- (AUDIO)
  - Phono jack
  - Output level: 2 Vrms
  - Load impedance: 10 kilohms
- (VIDEO)
  - Phono jack
  - Output level: 1.0 Vp-p
- (S VIDEO)
  - 4-pin mini DIN
  - Output level: Y:1.0 Vp-p, C: 0.3 Vp-p (PAL)
- LINE 4 IN
- (AUDIO)
  - Phono jack
  - Input level: 2 Vrms
  - Input impedance: more than 22 kilohms
- (VIDEO)
  - Phono jack
  - Input level: 1.0 Vp-p
- (S VIDEO)
  - 4-pin mini DIN
  - Input level: Y:1.0 Vp-p, C: 0.3 Vp-p (PAL)
- LINE 2 IN
- (AUDIO)
  - Phono jack
  - Input level: 2 Vrms
  - Input impedance: more than 22 kilohms
- (VIDEO)
  - Phono jack
  - Input level: 1.0 Vp-p
- (S VIDEO)
  - 4-pin mini DIN
  - Input level: Y:1.0 Vp-p, C: 0.3 Vp-p (PAL)
- LINE 1 -TV
  - 21-pin
  - CVBS IN/OUT
  - S-Video/RGB OUT (upstream)
- LINE 3/DECODER
  - 21-pin
  - CVBS IN/OUT
  - S-Video/RGB IN
  - S-Video OUT (downstream)
  - Decoder
- DV IN
  - 4-pin
  - i.LINK S100
- DIGITAL OUT (OPTICAL)
  - Optical output jack
  - Output level: –18 dBm (wave length: 660 nm)
- DIGITAL OUT (COAXIAL)
  - Phono jack
  - Output level: 0.5 Vp-p
  - Load impedance: 75 ohms
- COMPONENT VIDEO OUT(Y, C_B, C_R)
  - Phono jack
  - Output level: Y: 1.0 Vp-p/C_B, C_R: 0.7 Vp-p

General

- Power requirements
  - 220-240 V AC, 50/60 Hz
- Power consumption
  - 47 W
- Dimensions (approx.)
  - 430 × 89 × 381 mm (width/height/depth) incl. projecting parts
- Mass (approx.)
  - 5.7 kg
- Operating temperature
  - 5 ºC to 35 ºC
- Operating humidity
  - 25 % to 80 %
- Supplied accessories
  - Audio/video cord (1)
  - Mains lead (1)
  - Aerial cable (1)
  - Remote commander (remote) (1)
  - R6 (size AA) batteries (2)

Compatible colour systems

This recorder is designed to record using the PAL colour system and play back using the PAL or NTSC colour systems. The signals of the SECAM colour system can be received or recorded but played back in the PAL colour system only. Recording of video sources based on other colour systems cannot be guaranteed.

Specifications and design are subject to change without notice.

DVD RECORDER

SONY®

WARNING!!

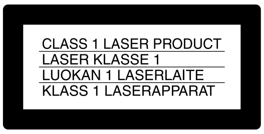
WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



CLASS 1 LASER PRODUCT
LASER KLASSE 1
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

LF : LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

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SERVICE NOTE

1. DISK REMOVAL PROCEDURE IF THE TRAY CANNOT BE EJECTED (FORCED EJECTION)

1. Pull out the power cord.
2. Remove the top case.
3. Prepare a hexagonal wrench or L-shaped stiff wire. (See Fig.1-1)
4. Insert a hexagonal wrench (or hard wire) into a hole on the side of the DVD drive in the right angle. (See Fig. 1-1. and 1-2.)
   Note: If a hexagonal wrench (or hard wire) is not inserted in at the right angle, belt may be damaged.
5. Press the rack to open the tray a little.
6. Pull out the tray slowly and gently.

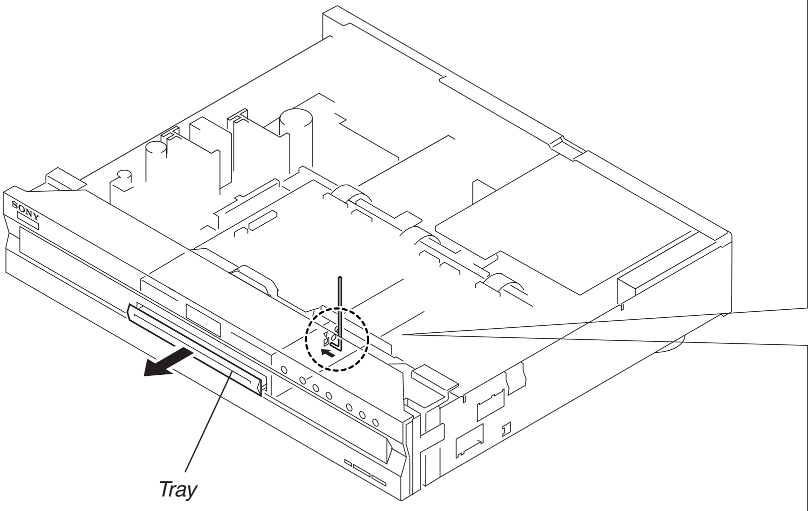
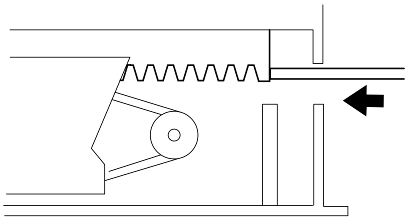
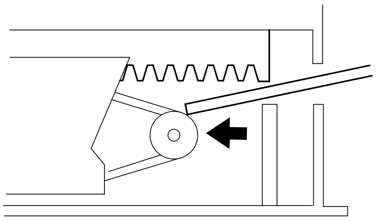


Fig. 1-1



Right way of pushing the wrench



Wrong way of pushing the wrench

Fig. 1-2

NOTES DURING THE FORCED EJECTION

1. If the forced ejection is executed while a blank disc media (DVD±RW, ±R) exists on the tray

- Insert a DVD-ROM (DVD test disc, DVD software available on the market, or the like) in the tray and then close the tray.

Note1: If you close the tray while it is empty, ejection of the tray becomes impossible.
Note2: If you close the tray with a CD disc inserted in it, the CD can be ejected. However, if you close the tray while it is empty, there can be a case that ejection of the tray becomes impossible.
Note3: Even if you replace the DVD drive unit while the tray remains under the state as described above, the situation cannot be improved.

2. If the tray cannot be ejected while the disc is not inserted

- Execute the forced ejection.
- Insert a DVD-ROM (DVD test disc, DVD software available on the market, or the like) on the tray and try to close the tray.
  (There are cases that it recovers the trouble.)

3. Contents of forcedly ejected blank disc media (DVD±RW, ±R) can be damaged. (There can be a case that initialization is also impossible.)

MEMO

SECTION 1
GENERAL

1-1. Operating Instructions

This section is extracted from instruction manual. (RDR-GX7 : 3-081-195-11)

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.
The mains lead must only be changed at a qualified service shop.

CLASS 1 LASER PRODUCT
LASER KLASSE 1
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION

The use of optical instruments with this product will increase eye hazard. As the laser beam used in this DVD recorder is harmful to eyes, do not attempt to disassemble the cabinet.
Refer servicing to qualified personnel only.

DANGER	VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
ATTENTION	RAYONNEMENT VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
VORSICHT	SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
ADVARSEL	SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
ADVARSEL	SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VARNING	SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STRÅLEN ÄR FARLIG.
VARO!	NÄKYVÄÄ JA NÄKYMÄTÖN AVATTAESSA OLET ALTTIINA LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

This label is located on the laser protective housing inside the enclosure.

Notice for customers in the United Kingdom and Republic of Ireland
A moulded plug complying with BS1363 is fitted to this equipment for your safety and convenience.
Should the fuse in the plug supplied need to be replaced, a 5 AMP fuse approved by ASTA or BSI to BS1362, (i.e., marked with ◈ or ♡ mark) must be used.
If the plug supplied with this equipment has a detachable fuse cover, be sure to attach the fuse cover after you change the fuse. Never use the plug without the fuse cover. If you should lose the fuse cover, please contact your nearest Sony service station.

Precautions

- This unit operates on 220 – 240 V AC, 50/60 Hz. Check that the unit's operating voltage is identical with your local power supply.
- To prevent fire or shock hazard, do not place objects filled with liquids, such as vases, on the apparatus.

VIDEO Plus+ and PlusCode are registered trademarks of Gemstar Development Corporation. The VIDEO Plus+ system is manufactured under license from Gemstar Development Corporation.

Precautions

This equipment has been tested and found to comply with the limits set out in the EMC Directive using a connection cable shorter than 3 metres.

On safety

Should any solid object or liquid fall into the cabinet, unplug the recorder and have it checked by qualified personnel before operating it any further.

On power sources

- The recorder is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the recorder itself has been turned off.
- If you are not going to use the recorder for a long time, be sure to disconnect the recorder from the wall outlet. To disconnect the AC power cord (mains lead), grasp the plug itself; never pull the cord.

On placement

- Place the recorder in a location with adequate ventilation to prevent heat build-up in the recorder.
- Do not place the recorder on a soft surface such as a rug that might block the ventilation holes.
- Do not place the recorder in a confined space such as a bookshelf or similar unit.
- Do not place the recorder in a location near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.
- Do not place the recorder in an inclined position. It is designed to be operated in a horizontal position only.
- Keep the recorder and discs away from equipment with strong magnets, such as microwave ovens, or large loudspeakers.
- Do not place heavy objects on the recorder.

On operation

- If the recorder is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the recorder. Should this occur, the recorder may not operate properly. In this case, remove the disc and leave the recorder turned on for about half an hour until the moisture evaporates.
- When you move the recorder, take out any discs. If you don't, the disc may be damaged.

On recording

- Contents of the recording cannot be compensated if the recording or playback is not made due to a malfunction of the recorder, disc, etc.
- Make trial recordings before taking the actual recording.

On adjusting volume

Do not turn up the volume while listening to a section with very low level inputs or no audio signals. If you do, the speakers may be damaged when a peak level section is played.

On cleaning

Clean the cabinet, panel, and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

On cleaning discs

Do not use a commercially available cleaning disc. It may cause a malfunction.

Copyrights

- Television programmes, films, video tapes, discs, and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws. Also, use of this recorder with cable television transmission may require authorization from the cable television transmitter and/or programme owner.
- This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents, other intellectual property rights owned by Macrovision Corporation, and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Copy guard function

Since the recorder has a copy guard function, programmes received through an external tuner (not supplied) may contain copy protection signals (copy guard function) and as such may not be recordable, depending on the type of signal.

Music discs encoded with copyright protection technologies

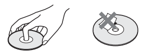
This product is designed to playback discs that conform to the Compact Disc (CD) standard.
Recently, various music discs encoded with copyright protection technologies are marketed by some record companies. Please be aware that among those discs, there are some that do not conform to the CD standard and may not be playable by this product.

IMPORTANT NOTICE
Caution: This recorder is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave the still video image or on-screen display image displayed on your TV for an extended period of time you risk permanent damage to your television screen. Plasma Display Panels and projection televisions are especially susceptible to this.

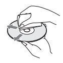
If you have any questions or problems concerning your recorder, please consult your nearest Sony dealer.

Notes about the discs

- To keep the disc clean, handle the disc by its edge. Do not touch the surface. Dust, fingerprints, or scratches on the disc may cause it to malfunction.



- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as the temperature may rise considerably inside the car.
- After playing, store the disc in its case.
- Clean the disc with a cleaning cloth. Wipe the disc from the centre out.



- Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for vinyl LPs.
- Do not use the following discs.
  - A disc that has a non-standard shape (e.g., card, heart).
  - A disc with a label or sticker on it.
  - A disc that has cellophane tape or sticker adhesive on it.

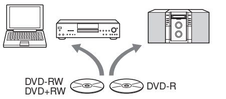
Features

This recorder can play DVDs or CDs, record on DVD-Rs, DVD-RWs or DVD+RWs, and by using a variety of editing functions, you can enjoy editing recorded programmes and other images.

Recording

Dual RW compatible *(page 20)*

The recorder is compatible with rewritable disc types, DVD-RW and DVD+RW, and the write-once type, DVD-R. These available disc types accommodate a wide range of uses, such as recording programmes and creating personal video libraries. These discs can be played back on a wide variety of other DVD equipment.



Various recording/timer recording functions *(page 20)*

In addition to the usual recording functions, such as Timer Recording, VIDEO Plus+, and PDC/VPS, Synchro Rec allows synchronized recording with a set top box or similar device. The recorder also automatically searches for available blank space on the disc after you press the Rec button. No searching is required on your part — a feature possible only with a DVD recorder.

Adjustments for both recording and playback picture *(page 30, 47)*

The recorder allows you to adjust the picture quality of input sources, such as a VCR, which can then be recorded on a DVD. For instance, if you want to create an archive of your VHS tapes, you can adjust the recording picture quality to compensate for the quality of the tapes. Various picture quality adjustments are also available for DVD-Video software playback.

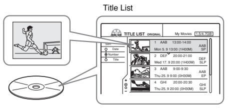
Automatic naming of programme titles using Teletext* *(page 79)*

When recording programmes using this recorder, the recorder automatically takes programme label information from the Teletext service and stores it as the title name. If there is no Teletext service or if you want to change the title name, you can enter the title manually. Titles are useful when searching for a title on a disc, or for checking the name of the title currently being played.
* not available in some areas

Playback

Easy playback with the Title List menu *(page 40)*

The recorder will display all of the titles you recorded on a disc in a list display, called the "Title List." By selecting a title from the Title List menu, you can easily start playing or editing the disc. Moreover, you can have the recorder show the title's contents using thumbnail images.



TV Virtual Surround Settings, "TVS" *(page 45)*

Using only your TV's stereo speakers, the recorder is capable of reproducing dynamic surround sound from DVD-Video software's multi-channel audio signals. There are four surround modes to choose from.

Editing a disc

Playlist edit (DVD-RW in VR mode only) *(page 54)*

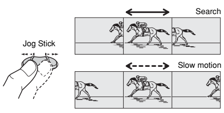
You can edit not only the recorded original title, but also perform advanced edit functions by creating a Playlist on the same disc. Since a Playlist does not require much disc space, you can create numerous Playlist titles. A Playlist edit can be redone as many times as you like, as the original title remains unchanged.

Chapter Marking function *(page 54)*

On DVD-RWs in VR mode, you can manually insert chapter marks to divide a title into chapters which will enable you to quickly find specific scenes for playback or editing. For other disc types and recording formats, the recorder automatically creates chapter marks at specified intervals while recording.

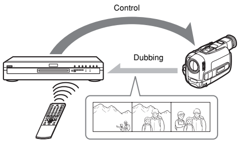
Quick Search function *(page 39)*

The remote has a Jog Stick for the recorder's main operations. You can search forward or backwards, or play at various speeds by using just your thumb. The feature helps you find scenes easily, which is especially useful for both playback and editing.



DV Edit

Only one i.LINK cable is required to transfer contents from a digital video camera to the DVD recorder. Since the recorder controls the digital video camera, dubbing and editing are easy to perform.



One Touch Dubbing function *(page 61)*

One press on the ONE TOUCH DUB button is enough to complete the procedure. The recorder controls the digital video camera from start to finish — from playing the DV/Digital8 format tape to stop and rewind. The entire tape contents are dubbed to a DVD in the process.

Program Edit *(page 62)*

This function allows you to select scenes on a DV/Digital8 format tape and save them on recordable DVDs, including non-rewritable DVD-Rs. The recorder controls the digital video camera to record the contents of a DV/Digital8 format tape to the disc as programmed. The recorder will remember which scenes you selected and saves this information as a program. You can call up a program at any time and make additional copies of the program to blank DVDs.

Advanced Program Edit *(page 64)*

This function takes advantage of a DVD's random access capabilities to enable fast and flexible editing.
The recorder copies the entire contents of a DV/Digital8 format tape to a DVD-RW in VR mode, whereupon the contents are automatically divided into chapters. The chapters are displayed as scenes in a scene list where you can instantly delete or rearrange the scenes at will. The recorder remembers which scenes you selected, and saves this information as a program. You can call up a program at any time and make additional copies of the program to a blank DVD.

Auto Scene Chaptering (DVD-RW in VR mode only) *(page 62)*

While copying a DV/Digital8 format tape to a DVD-RW, the recorder automatically inserts chapter marks at each point where you started recording on your digital video camera. This enables you to quickly find the scenes you want during playback and editing.

About This Manual

Instructions in this manual describe the controls on the remote. You can also use the controls on the recorder if they have the same or similar names as those on the remote.
The meanings of the icons used in this manual are described below:

Icon	Meaning
DVD	Functions available for DVD VIDEOs or DVD+Rs
-RW VR	Functions available for DVD-RWs formatted in VR mode on this recorder
-RW VIDEO	Functions available for DVD-RWs formatted in Video mode on this recorder
+RW	Functions available for DVD+RWs
-R	Functions available for DVD-Rs
CD	Functions available for music CDs or CD-Rs/CD-RWs in music CD format

Notes

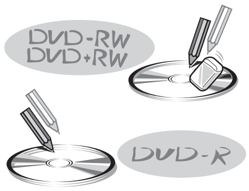
- The on-screen display illustrations used in this manual may not match the graphics displayed on your TV screen.
- The explanations regarding discs in this manual refer to discs created on this recorder. The explanations do not apply to discs that are created on other recorders and played back on this recorder.

DVD Recorder Basics

"What can I expect from DVD recording?" is a natural question for anyone new to the experience. This section explains the basic steps involved with DVD recording.

Step 1: Select the disc type

Unlike a video tape which is sold by length, such as 60 min. or 120 min., recordable DVDs are sold by type. Select the disc type by following the chart on the back cover, as each type has different features.
This recorder can record on the following type of discs.



When you want to record repeatedly on the same disc, or when you want to edit the disc after recording, select either the rewritable DVD-RW or DVD+RW type disc.

When you want to save recordings without any alteration, a non-rewritable DVD-R can be your choice.

Note

There are other differences besides just being rewritable/non-rewritable.

See "Quick Guide to DVD Disc Types" on the back cover to select a disc most suitable for your needs.

Step 2: Format the disc to start recording

Insert the disc in the recorder. Unlike a VCR, the recorder automatically starts formatting when an unused disc is inserted. This is necessary to prepare the disc for recording.

When using a DVD-RW

This type of disc can be formatted in either DVD Video format (Video mode) or DVD Video Recording format (VR mode). Video mode discs can be played back on a variety of other DVD equipment.VR mode discs allow for more varied editing.

When using a DVD+RW

These discs will be formatted in DVD+RW Video format. This type of disc can be played back on a variety of other DVD equipment.

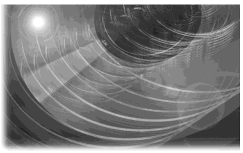
When using a DVD-R

These discs will be formatted in DVD-Video format. This type of disc can be played back on a variety of other DVD equipment.

Notes

- You cannot mix two formats in one DVD-RW.
- You can change a DVD-RW's format to the other format. However, the disc's contents will be lost when reformatting.
- Not all discs can be played on other DVD equipment.

When formatting is complete, you are ready to record on the disc.



Step 3: Digital Recording

Record a programme. When using the timer, you'll find familiar, convenient features found on conventional VCRs, such as ShowView/VIDEO Plus+ and PDC/VPS. You can also dub and edit the contents of connected video equipment such as a digital video camera.

SHOWVIEW®

VIDEOPlus+

SMARTLINK

i.LINK (DV)

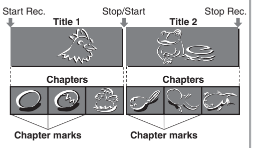
Step 4: Playing the recorded contents

You can select the title you want to play from a displayed menu, and immediately start playback. Recorded contents are more accessible on a disc than on a tape, the procedure is simple, and unlike conventional VCRs, no rewinding is necessary!

What are titles and chapters?

DVD contents consist of sections, called titles, and smaller sub-sections called chapters.
On this recorder, a title is created between the points where you start and stop a recording. Chapters are created automatically at specified intervals, or can be created manually (DVD-RWs in VR mode only).

A recorded disc contains title(s), and each title contains chapter(s)



Go to the next page.

➡continued

Step 5: Editing the recorded disc

You will find editing discs a lot easier than a conventional tape, and the recorder offers numerous edit functions, possible only with DVDs.

Quick and easy edits on the displayed menu

Editing is performed by simply selecting titles and scenes from the displayed menus.

Protection of individual titles

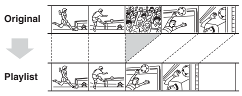
With conventional VCRs, you had to protect an entire tape to save the recordings from erasure or alteration. This recorder allows you to individually protect recorded titles (except for Playlist titles).

Edit and save on a single disc - Playlist edit (DVD-RWs in VR mode only)

To edit a conventional tape without affecting the original recording, you had to connect another VCR, copy the master tape using the two VCRs and one more tape, and start editing the copied tape.

With this recorder, you can create a Playlist (playback information) on the same disc, and edit the Playlist without changing the original recording(s). A Playlist does not take up much disc space, and all you need is one recorder and one disc.

Example: You have recorded a few football games on a DVD-RW in VR mode. You want to save the original recording, but you also want to create a digest by putting the goal scenes together. In this case, you can create a Playlist by selecting just the goal scenes, leaving the original recording as it is.



You've got your own DVD!

Playing on other DVD equipment

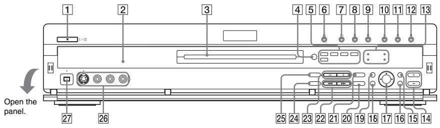
You can play your DVD on other equipment. In order to do this, you need to finalize the disc. Make sure that you have finished all your editing and recording on the disc before finalizing.

Guide to Parts and Controls

For more information, see the pages in parentheses.

Front panel

Buttons on the recorder have the same function as the buttons on the remote if they have the same or similar names.



1 **I/⏻ (on/standby) button/indicator *(23)***
Turns the recorder on and off. Lights up in green when the power is on.

2 **Front panel display *(14, 44)***
Displays the playing status, title/chapter/time, etc.

3 **Disc tray *(23)***
Opens to accept a disc.

4 **(remote sensor)**
Accepts the remote control signal.

5 **Disc type indicators**
Lights up to indicate the disc/format type of the current disc.

6 **⏏ (open/close) button *(23)***
Opens or closes the disc tray.

7 **▷ (play) button/indicator *(37)***
Plays a disc.

8 **❚❚ (pause) button/indicator *(39)***
Pauses playing a disc.

9 **■ (stop) button *(37)***
Stops playing a disc.

10 **● REC button/indicator *(23)***
Starts recording.

11 **❚❚ REC PAUSE button/indicator *(23)***
Pauses recording.

12 **■ REC STOP button *(23)***
Stops recording.

13 **TIMER REC indicator *(25)***
Lights up when a timer recording is set.

SYNCHRO REC indicator *(31)*
Lights up when the Synchro Rec function is set to on.

FINALIZED indicator *(34)*
Lights up if an inserted disc has been finalized.

SMARTLINK indicator
Lights up when a connected SMARTLINK compliant device, such as a TV, is turned on.

14 **ZOOM +/– buttons *(15)***
Switches the information displayed in the Title List menu.

15 **CURSOR MODE button *(16)***
Switches the cursor/page mode in the Title List, etc.

16 **TOOL button *(16)***
Displays the Tool menu.

17 **←/↑/↓/→/ENTER button *(16)***
Selects items or settings.

18 **RETURN button *(16)***
Returns to the previously selected display, etc.

19 **SYSTEM MENU button *(15)***
Displays the System Menu on the TV screen.

20 **ONE TOUCH DUB button *(61)***
Records the contents of a DV/Digital8 format tape with a single touch of the button.

21 **REC MODE button *(23)***
Selects the recording mode.

22 **⏮/⏭ (previous/next) buttons *(39)***
Goes to the next title/chapter/track, or goes back to the previous title/chapter/track.

23 **PROGRAM +/– buttons *(23)***
Selects the programme position or input line.

24 **TITLE LIST button *(15, 40, 51)***
Displays the Title List menu on the TV screen.

25 **INPUT SELECT button *(23, 59, 71)***
Selects equipment connected to the line inputs.

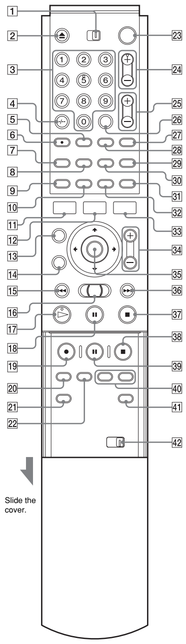
26 **LINE 2 IN (S VIDEO/VIDEO/AUDIO L/R) jacks *(71)***
Connects external equipment.

27 **DV IN jack *(59)***
Connects digital equipment with a DV jack.

➡continued

Remote

Buttons on the remote have the same function as the buttons on the recorder if they have the same or similar names.



1 **TV/DVD switch**
Switches the remote control to TV or DVD.

2 **⏏ (open/close) button *(23)***
Opens or closes the disc tray. Note that it may take a few seconds for the disc tray to open after you have recorded or edited a disc.

3 **Number buttons *(23, 29)***
Select a number such as a programme number or a title number.
The number 5 button has a tactile dot.*

4 **CLEAR/-/-- (ten digit) button *(29)***
CLEAR: Cancels an entered number when used with this recorder.
-/-- (ten digit): Used to enter a digit greater than nine when used with your TV (*see "Controlling Your TV or AV Amplifier (Receiver)" in the separate booklet, "Hookups and Settings"*).

5 **(subtitle) button *(47)***
Changes the subtitles while playing a disc.

6 **(audio) button *(44)***
Changes the sound while playing a disc.
The button has a tactile dot.*

7 **TIMER button *(25, 29)***
Displays the Timer programming menu on the TV screen.

8 **TOP MENU button *(38)***
Displays the disc's menu on the TV screen.

9 **DISPLAY button *(24, 43)***
Displays disc information or playing/recording status on the TV screen.

10 **TIME/TEXT button *(43)***
Displays the time information of the disc.

11 **SYSTEM MENU button *(15)***
Displays the System Menu on the TV screen.

12 **TITLE LIST button *(15, 40, 51)***
Displays the Title List menu on the TV screen.

13 **CURSOR MODE button *(16)***
Switches the cursor/page mode in the Title List, etc.

14 **RETURN button *(16)***
Returns to the previously selected display, etc.

15 **⏮ (previous) button *(39)***
Goes back to the previous title/chapter/track.

16 **◀◀◀ı/ı▶▶▶ (search) Jog Stick *(39)***
Searches fast-forward or reverses a scene (while playing a disc), or plays a disc in slow motion or frame by frame (in the pause mode).

17 **▷ (play) button *(37)***
Plays a disc.
The button has a tactile dot.*

18 **❚❚ (pause) button *(39)***
Pauses playing a disc.

19 **● REC button *(23)***
Starts recording.

20 **REC MODE button *(23)***
Selects the recording mode.

21 **INPUT SELECT button *(23, 59, 71)***
Selects equipment connected to the line inputs.

22 **SYNCHRO REC button *(31)***
Synchronizes the recorder and the timer recording set on the connected external equipment.

23 **I/⏻ (on/standby) button *(23)***
Turns the recorder on and off.

24 **PROG (programme) +/– buttons *(23)***
Selects the programme position or input line.

25 **◿ (volume) +/– buttons**
Adjusts the volume of your TV or AV amplifier (receiver).

26 **SET button *(18)***
Use to enter the number selected with the number buttons 3.

27 **⇥ (TV/video) button**
Switches your TV's input source.

28 **(angle) button *(46)***
Changes the angles when playing a DVD VIDEO.

29 **(wide mode) button**
Changes the wide mode settings of your TV (*see "Controlling Your TV or AV Amplifier (Receiver)" in the separate booklet, "Hookups and Settings"*).

30 **MENU button *(38)***
Displays the disc's menu on the TV screen.

31 **TV/DVD button *(23)***
Switches the input source between the TV and the recorder (*see "Controlling Your TV or AV Amplifier (Receiver)" in the separate booklet, "Hookups and Settings"*).

32 **REPLAY button *(39)***
Replays the current scene.

33 **TOOL button *(16)***
Displays the Tool menu.

34 **ZOOM +/– buttons *(15)***
Switches the information displayed in the Title List menu.

35 **←/↑/↓/→/(ENTER) button *(16)***
Selects items or settings.

36 **⏭ (next) button *(39)***
Goes to the next title/chapter/track.

37 **■ (stop) button *(37)***
Stops playing a disc.

38 **■ REC STOP button *(23)***
Stops recording.

39 **❚❚ REC PAUSE button *(23)***
Pauses recording.

40 **CHAPTER MARK/ERASE buttons *(54)***
Inserts/erases a chapter mark in the recorded title.

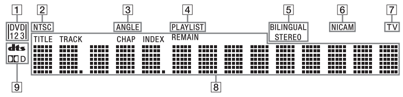
41 **SUR (surround) button *(45)***
Selects the surround mode.

42 **COMMAND MODE switch (DVD 1,2,3)**
Switches the command mode for this recorder. Match the switch to the same command mode set in the Options Setup (*page 82*). (*See "Preparing the Remote" in the separate booklet, "Hookups and Settings."*)

* Use the tactile dot as a reference when operating the recorder.

➡continued

Front panel display



1 **Command mode indicator *(82)***
Indicates the selected remote command mode (*see "Preparing the Remote" in the separate booklet, "Hookups and Settings"*).

2 **NTSC indicator**
Lights up when the recorder outputs the signal in NTSC format.

3 **ANGLE indicator *(46)***
Lights up when you can change the angle.

4 **PLAYLIST indicator *(16)***
Lights up when the Playlist is selected.

5 **STEREO/BILINGUAL indicators *(24)***
Lights up when receiving a stereo/bilingual programme.

6 **NICAM indicator *(24)***
Lights up when receiving a NICAM signal.

7 **TV indicator**
Lights up when the TV/DVD button on the remote is pressed and the signals from the aerial are sent directly to your TV *(see "Controlling Your TV or AV Amplifier (Receiver)" in the separate booklet, "Hookups and Settings")*.

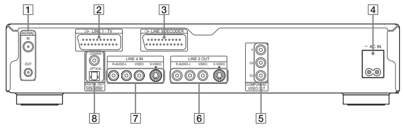
8 **Displays the following *(44)*:**
- Playing time/remaining time
- Current title/chapter/track/index number
- Recording time
- Clock
- Programme position
- TV Direct Rec indication *(24)*: "TV" appears in the right most two digits.

9 **Audio signal indicators *(45)***
Lights up when playing Dolby Digital or DTS sound tracks.

Hint
You can turn off the front panel display by setting "Dimmer" to "Off" in Options Setup *(page 82)*.

Rear panel

For more information regarding the jacks, *see the separate booklet, "Hookups and Settings."*



1 **AERIAL IN/OUT jacks**
Connects aerial cables.

2 **LINE 1 -TV jack**
Connects your TV using a SCART (EURO AV) cord.

3 **LINE 3/DECODER jack *(31)***
Connects external equipment such as a VCR or decoder using a SCART (EURO AV) cord.

4 **AC IN terminal**
Connects the mains lead.

5 **COMPONENT VIDEO OUT (Y, C_B, C_R) jacks**
Connects equipment having component video input jacks.

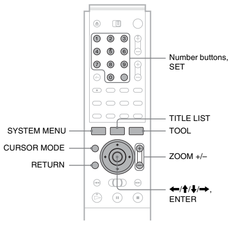
6 **LINE 2 OUT (S VIDEO/VIDEO/AUDIO L/R) jacks**
Connects the input of external equipment using an audio/video or S VIDEO cord.

7 **LINE 4 IN (S VIDEO/VIDEO/AUDIO L/R) jacks *(71)***
Connects the output of external equipment using an audio/video or S VIDEO cord.

8 **DIGITAL OUT (COAXIAL/OPTICAL) jacks**
Connects an amplifier (receiver) having a digital input jack.

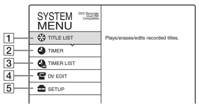
Guide to Displays

The recorder uses the following four types of displays for most operations: System Menu, Title List, Tool, and Sub-menu.
It also has a Disc Information display for checking the status of the inserted disc, and an on-screen keyboard that enables you to label a title or disc.



System Menu

The System Menu appears when you press SYSTEM MENU, and provides entries to all of the recorder's main functions.



Plays/erases/edits recorded titles.

1 **TITLE LIST:**
Turns on the Title List menu, which shows recorded titles on the disc *(page 40, 51)*.

2 **TIMER:**
Allows you to set a new timer recording setting *(page 25)*.

3 **TIMER LIST:**
Turns on the Timer List menu, which allows you to check, change, or cancel timer settings *(page 28)*.

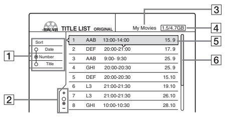
4 **DV EDIT:**
Activates the DV Edit function, which allows you to record and edit the contents of a DV/Digital8 format tape *(page 62)*.

5 **SETUP:**
Turns on the Setup Display, which allows you to set up the recorder to suit your preferences *(page 74)*.

Title List

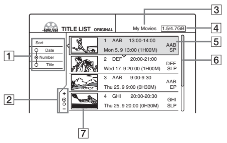
The recorder uses list displays for some operations. The most frequently used is the Title List menu.
The Title List menu appears when you press TITLE LIST or when you select "TITLE LIST" from the System Menu, and displays all the titles on the disc.
To show the list in greater details (zoom), press ZOOM+. To return to the previous display, press ZOOM–.

Standard Title List



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

"Zoomed" Title List



1 AAB 13:00-14:00
Mon 5. 9 13:00 (1H00M) AAB SP
2 DEF 20:00-21:00
Wed 17. 9 20:00 (1H00M) DEF SLP
3 AAB 9:00-9:30
Thu 25. 9 9:00 (0H30M) AAB EP
4 GHI 20:00-20:30
Thu 25. 9 20:00 (0H30M) GHI SLP

1 **Sort buttons:**
Sorts the title order *(page 41)*.

2 **Zooming indicator:**
Shows the current zoom status *(page 41)*.

3 **Disc name (*page 33*)**

4 **Disc space (remainder/total)**

5 **Title information:**
Displays the title number, title name, and recording date (*page 41*).

6 **Scroll bar:**
Appears when all the titles do not fit on the list. To view the hidden titles, press ↑/↓.

7 **Title's thumbnail picture (*page 41*)**

Notes
- The Title List does not appear when you play DVD VIDEOs, CDs, CD-Rs, or CD-RWs.
- The Title List may not appear for discs created on other DVD recorders.

➡continued

About the types of Title List menus

The appearance of the Title List menu differs according to the disc type and recording format.

◆For DVD+RWs, DVD-Rs, DVD-RWs (Video mode):

The Title List menu appears and displays the titles on the disc.

◆For DVD-RWs (VR mode):

The Title List (Original) or Title List (Playlist) menu appears and displays the Original or Playlist titles on the disc. The "PLAYLIST" indicator lights up on the front panel display when the Title List (Playlist) menu is selected.

To switch the Title List menu for a DVD-RW (VR mode)

The recorder displays either the Original or Playlist Title List. Follow the steps below.

1. **Press TITLE LIST.**
   The Title List menu appears.
2. **Press TOOL.**
   The Tool menu appears.
3. **Press ↑/↓ to select either "Original" or "Playlist," whichever is not displayed, then press ENTER.**
   The display switches to the selected Title List menu.

To scroll the list display by page (Page mode)

Press CURSOR MODE while the list display is turned on. The display enters Page mode. Each time you press ↑/↓, the entire Title List changes to the next/previous page of titles.
To return to the Cursor mode, press CURSOR MODE again.

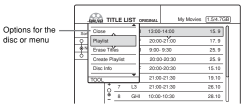
Note

When you turn off the list display, the Page mode is cancelled.

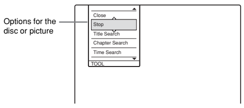
Tool

The Tool menu appears when you press TOOL, and displays options applicable to the entire disc or recorder.

Example 1: When you press TOOL while the Title List menu is turned on.



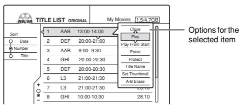
Example 2: When you press TOOL while a DVD is playing.



Sub-menu

The sub-menu appears when you select an item from the displayed list menu and press ENTER. The sub-menu displays options applicable only to the selected item.

Example: The Title List menu



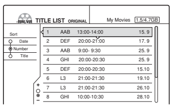
How to use the displays

The recorder's overall operation is simple. Generally, commands are displayed in the menu, and can be selected by pressing only ←/↑/↓/→, and ENTER. Once you know the common procedure, you will find the recorder easy to operate.

1 **Press SYSTEM MENU.**
The System Menu appears with entries to the main functions.

2 **Press ↑/↓ to select a function, then press ENTER.**
The display for the selected function appears.

Example: When "TITLE LIST" is selected.



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

◆ **Using the Tool menu**

Use the Tool menu to display options for the entire disc.

① **Press TOOL.**
The Tool menu appears.

② **Press ↑/↓ to select the option, then press ENTER.**

◆ **Using the sub-menu**

The sub-menu displays options for a specific title.

① **Press ↑/↓ to select the title on the list, then press ENTER.**
The sub-menu appears.

② **Press ↑/↓ to select the option, then press ENTER.**

3 **Press RETURN repeatedly to turn off the list display.**

To return to the previous display

Press RETURN.

List of the Tool/sub-menu options

The options vary depending on the disc type or status of the recorder. Only the options available in the situation appear in the menus. For details, see the pages in parentheses.

◆Tool

A-B Erase	Erases a portion in the title being played *(page 53)*
Audio Settings	Adjusts settings for the playback audio quality *(page 48)*
Chapter Search	Searches for a chapter by chapter number *(page 42)*
Close	Turns off the Tool menu
Combine	Combines multiple titles *(page 58)*
Create Playlist	Creates a Playlist title *(page 54)*
Disc Info	Displays the disc information *(page 18)*
Disc Map	Indicates the available disc space *(page 22)*
Divide	Divides the title being played *(page 57)*
DV Audio Input	Selects the audio input signal for the DV jack *(page 59)*
Erase	Erases the title being played *(page 52)*
Erase Titles	Erases multiple titles at a time *(page 52)*
Extend Rec	Extends the recording duration time during a timer recording *(page 27)*
Line Audio Input	Selects the audio input signal for the LINE IN jacks *(page 71)*
Original	Displays the Title List (Original) menu *(page 16)*
PDC/VPS Scan On/Off	Turns on/off the PDC/VPS channel scan function *(page 26)*
Play	Starts playback *(page 37)*
Play From Start	Plays from the beginning of the title/ track *(page 40)*
Playlist	Displays the Title List (Playlist) menu *(page 16)*
Protect	Sets protection for the title being played so that it cannot be erased or edited *(page 51)*
Rec Mode Adjust	Turns on/off the Rec Mode Adjust function *(page 27)*
Rec Settings	Adjusts settings for recording *(page 30)*
Rec Stop	Stops recording *(page 23)*
Record	Starts recording *(page 23)*
Reset Resume	Restarts playback from the beginning of the disc *(page 40)*
Set Thumbnail	Selects a scene to be used for the Title List thumbnail *(page 41)*
Stop	Stops playback/dubbing (*page 38, 62)*
Time Search	Searches by playback time *(page 42)*
Timer	Sets the timer for recording *(page 25)*
Title Name	Changes the name of the title being played *(page 51)*
Title Search	Searches for a title by title number *(page 42)*
Track Search	Searches for a track by track number *(page 42)*
Video Settings	Adjusts settings for the playback picture quality *(page 47)*

◆Sub-menu

A-B Erase	Erases a portion in a selected title *(page 53)*
Capture	Collects scenes from the selected original title or other Playlist titles to create a new Playlist *(page 54)*
Capture All	Captures an entire title as a scene *(page 54)*
Change IN	Resets the IN point *(page 54)*
Change OUT	Resets the OUT point (*page 54)*
Check Overlap	Checks the overlapped timer settings *(page 28)*
Check Scenes	Displays all of the collected scenes *(page 54)*
Close	Turns off the sub-menu
Divide	Divides the selected title *(page 57)*
DV Dubbing	Starts Copy Dubbing *(page 69)*
Edit	Displays the Scene List menu *(page 67)*
Erase	Erases the selected title/cancels the timer setting/erases the selected scene/ cancels the scene selection/erases a program from the DV Edit List
Extend Rec	Extends the recording duration time *(page 27)*
Make a Playlist	Creates a Playlist title on the disc from the DV Edit List in the recorder *(page 67)*
Modify	Changes the timer setting *(page 28)*
Move	Change the scene order (*page 54)*/ changes the Playlist title order *(page 57)*
Play	Starts playback *(page 40)*
Play From Start	Plays from the beginning of the selected title *(page 40)*
Preview	Previews the selected scenes *(page 54)*

➡*continued*

Protect	Sets protection for the selected title *(page 51)*
Rec Stop	Stops recording *(page 23)*
Rename	Changes the program name (DV Edit) *(page 70)*
Set Thumbnail	Selects a scene for the Title List thumbnail *(page 41)*
Title Name	Changes the name of the selected title *(page 51)*

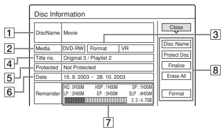
Disc information display (Disc Info)

You can check the status of the inserted disc.

1 **Press TOOL while the disc is in the recorder.**
The Tool menu appears.

2 **Press ↑/↓ to select "Disc Info," then press ENTER.**
The Disc Information display appears.
Items in the display differ depending on the disc type or recording format.

Example: DVD-RW (VR mode)



1 **Disc Name**

2 **Media:**
Disc type

3 **Format:**
Recording format type (DVD-RW only)

4 **Title no.:**
Total number of titles

5 **Protected:**
Indicates whether protection is set (DVD-RW in VR mode only)

6 **Date:**
Dates when the oldest and the most recent titles are recorded

7 **Continuous Rem. Time/Remainder:**
- The longest continuous recording time in each of the recording modes
- Disc space bar
- Remaining disc space/total disc space (approximate)

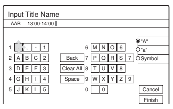
8 **Disc setting buttons**
- Disc Name: Labels the disc (*page 33)*
- Protect Disc: Protects the disc (DVD-RW in VR mode only) (*page 33)*
- Finalize: Finalizes the disc/Creates a DVD menu (DVD+RW only) (*page 34)*
- Unfinalize: Unfinalizes the disc if it has already been finalized (DVD-RW in VR mode only) (*page 34)*
- Erase All: Erases all titles on the disc (*page 34)*
- Format: Reformats the disc (*page 35)*

How to enter characters

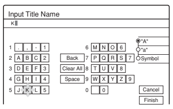
You can label a title, disc, program, or channel by entering characters. You can enter up to 64 characters for a title/disc/ program name, but the actual number of characters displayed in the menus such as the Title List will vary. When the display for entering characters appears, follow the steps below.

1 **Press ←/↑/↓/→ to select the type of characters, "A" (uppercase), "a" (lower case), or "Symbol," then press ENTER.**
The characters of the selected type are displayed.

Example: Input Title Name



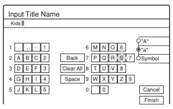
2 **Press ←/↑/↓/→ to select a character you want to enter, then press ENTER.**
The selected character appears at the top of the display.



To enter a letter with an accent mark, select an accent followed by the letter.
Example: Select " ´ " and then "a" to enter "á."

To insert a space between the characters, select "Space."

3 **Repeat steps 1 and 2 to enter all the characters for the name.**



◆ **To erase a character**

① **Press ←/↑/↓/→ to move the cursor to the input row.**

② **Press ←/→ to move the cursor to the right of the character you want to erase.**

③ **Press ←/↑/↓/→ to select "Back," then press ENTER.**

◆ **To insert a character**

① **Press ←/↑/↓/→ to move the cursor to the input row.**

② **Press ←/→ to move the cursor to the right of the point where you want to insert a character.**

③ **Press ←/↑/↓/→ to select the character you want to insert, then press ENTER.**

◆ **To erase all the characters**
Press ←/↑/↓/→ to select "Clear All," then press ENTER.

4 **Press ←/↑/↓/→ to select "Finish," then press ENTER.**
To cancel the setting, select "Cancel."

To use the number buttons

You can also use the number buttons to enter characters.

1. **In step 2 above, press the number buttons repeatedly to select the character you want to enter.**
   Example:
   Press the number 3 button once to enter "D."
   Press the number 3 button three times to enter "F."
2. **Select the next character, or press SET.**
3. **Repeat steps 1 and 2 to enter all of the characters for the name.**
4. **Press ←/↑/↓/→ to select "Finish," then press ENTER.**

Recording/ Timer Recording

This section covers the basics of DVD recording, and the available methods for setting the timer.

- Before Recording . . . . page 20
- Recording TV programmes -RW VR -RW VIDEO +RW -R . . . . page 23
- Timer Recording -RW VR -RW VIDEO +RW -R. . . . . page 25
- Adjusting the Recording Picture Quality and Size -RW VR -RW VIDEO +RW -R . . page 30
- Recording from External Equipment with a Timer (Synchro Rec) -RW VR -RW VIDEO +RW -R. . . . . page 31
- Labelling, Protecting, or Finalizing the Disc -RW VR -RW VIDEO +RW -R. . . page 33

Before Recording

This recorder can record on various discs. Before you record, read the following and select the disc type according to your needs.

Recordable discs

This recorder can record on the following discs.

◆Disc type

DVD-RW*[1] Ver. 1.1 Ver. 1.1 with CPRM*[2]	DVD RW
DVD+RW*[1]	RW DVD+ReWritable
DVD-R*[1] Ver. 2.0	DVD R R4.7

*[1] "DVD-RW," "DVD+RW," and "DVD-R" are trademarks.

*[2] CPRM (Content Protection for Recordable Media) is a coding technology that protects copyrights for images.

DVD-RWs and DVD+RWs are rewritable. DVD-Rs are non-rewritable.
The recorder cannot record on the following discs:
- 8 cm discs
- DVD+R
- DVD-RW (Ver 1.0)
- DVD-RAM
- CD-R/CD-RW

Notes
- The following type of high-speed discs can be used for recording: up to 2×-speed DVD-RWs (Revision 1.0), up to 4×-speed DVD-Rs (Revision 1.0), or up to 4×-speed DVD+RWs. Note that high-speed discs will not record at higher speed. You cannot record on the disc if it is not 1×-speed compatible.
- Use a disc with CPRM to record Copy-Once TV programmes *(page 21)*.
- It is recommended that you use discs with "For Video" printed on their packing.
- You cannot add new recordings to DVD-Rs and DVD-RWs (Video mode) that contain recordings made on other DVD recorders.
- In some cases, you may not be able to add new recordings to DVD+RWs that contain recordings made on other DVD recorders. If you do add a new recording, note that this recorder will rewrite the DVD menu. If the disc contains PC data unrecognizable by this recorder, the data will be erased.

About recording formats

When you insert an unused disc, the recorder automatically starts formatting. Since available functions differ depending on the disc type, select the disc that best suits your needs using the chart below.
You can preset the format for unused DVD-RWs in Options Setup. When "Format Disc" is set to either "VR" or "Video" *(page 82)*, the recorder starts formatting in the selected mode without asking for confirmation. Select "Selectable" if you want to select the mode each time you insert an unused DVD-RW.

Differences between the disc types

See pages in parentheses for details.

Disc type	Characteristics
+RW -RW VIDEO -R	– Records only one sound track of a bilingual programme *(page 24, 82)* – Automatically creates chapters at specified intervals *(page 79)* – Simple editing (erasing titles/changing title name, *page 51*)
-RW VR	– Records bilingual programmes *(page 24)* – Creates chapters manually or automatically *(page 54)* – Various editing options using a created Playlist *(page 54)* – Records Copy-Once programmes provided that the disc has CPRM

Notes
- To play a recorded disc on other DVD equipment, you need to finalize the disc. For details on finalizing, *see page 34*.
- You cannot mix the two formats on one DVD-RW. To change the disc's format, reformat the disc *(page 35)*. Note that the disc's contents will be erased after reformatting.

Recording mode

While the recorder is stopped, you can select one of six recording modes by pressing REC MODE repeatedly for the desired recording time and picture quality. The picture quality generally improves as the recording time decreases.

Recording mode	Recording time (minute)
HQ	60
HSP	90
SP (Standard mode)	120
LP	180
EP	240
SLP	360

Notes
- The recording times are an estimate and actual times may differ.
- Situations below may cause slight inaccuracies with the recording time.
– Recording a programme with poor reception, or a programme or video source of low picture quality
– Recording on a disc that has already been edited
– Recording only a still picture or just sound

Unrecordable pictures

Pictures with copy protection cannot be recorded on this recorder.
When the recorder receives a copy guard signal while recording, the recorder stops recording and a message appears on your TV screen.

About pictures with Copy Control Signals

Broadcasts that contain Copy Control Signals may have one of the following three signal types, Copy-Free, Copy-Once, and Copy-Never. This recorder limits the recording according to copy protection signal as shown below.
If you want to record a Copy-Once programme, use a DVD-RW with CPRM in VR mode.

◆Available recording options

	Copy-Free	Copy-Once	Copy-Never
DVD-RW (Ver.1.1)	○	—	—
DVD-RW (Ver.1.1 with CPRM in VR mode)	○	○*	—
DVD+RW	○	—	—
DVD-R (Ver.2.0)	○	—	—

* The recorded disc can be played only on CPRM compatible equipment.

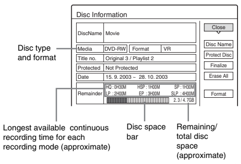
Checking the available disc space (Disc Info)

When recording on a used disc, make sure that there is enough disc space for recording. With DVD-RWs or DVD+RWs, you can free up disc space by erasing titles.

1. **Press TOOL while the disc is in the recorder.**
The Tool menu appears.

2. **Press ↑/↓ to select "Disc Info," then press ENTER.**
The Disc Information display appears.
Items in the display differ depending on the disc type or recording format. Note that the remaining disc space indicator is an estimate and actual available space may differ.

Example: DVD-RW (VR mode)



Disc Information

DiscName	Movie		
Media	DVD-RW	Format	VR
Title no.	Original 3 / Playlist 2		
Protected	Not Protected		
Date	15. 9. 2003 ~ 28. 10. 2003		
Remainder	HQ : 0H30M HSP : 1H00M SP : 1H30M LP : 2H00M EP : 3H00M SLP : 4H00M 2.3 / 4.7GB		

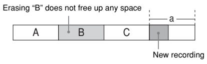
Close
Disc Name
Protect Disc
Finalize
Erase All
Format
Disc type and format
Longest available continuous recording time for each recording mode (approximate)
Disc space bar
Remaining/ total disc space (approximate)

➡continued

-R

◆How programmes are recorded on the disc

A new programme is recorded on the last space [a] only. Check that the remaining disc space is large enough for the recording.

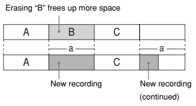


You cannot free up disc space on a DVD-R. Erasing a title will only hide the title name in the Title List menu. The erased titles will still take up space on the disc.

-RW VR

◆How programmes are recorded on the disc

A programme is recorded on the free disc space [a]. Check that the total remaining disc space is large enough for recording.



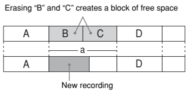
◆To free up disc space

You can free up disc space by erasing titles. The original title used for a Playlist cannot be erased.
To erase a title, *see page 52*.
To erase multiple titles, *see page 52*.

-RW VIDEO +RW

◆How programmes are recorded on the disc

The recorder searches for the largest block of space [a] and records there. Check that there is a continuous free block large enough for the recording. If not, the recording will stop.



◆To check or free up disc space

For DVD-RWs (Video mode) and DVD+RWs only, you can check free disc space and title location, and also erase titles using the Disc Map display *(see below)*.

Hint

You can erase all the disc's titles other than protected titles at one time *(see page 34)*.

Notes
- When you erase titles, the title order may change depending on the disc type or format.
- After finalizing, you cannot record further on a DVD-RW (Video mode) or DVD-R.

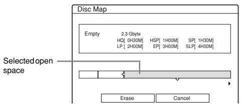
To free up disc space using the Disc Map display (DVD-RW in Video mode, DVD+RW only)

The Disc Map display in the Tool menu allows you to check the disc status and erase titles on the disc.

1. **Press TITLE LIST while the disc is in the recorder.**
2. **Press TOOL.**
3. **Press ↑/↓ to select "Disc Map" from the Tool menu, then press ENTER.**
The Disc Map display appears.

◆ To check free disc space

Press ←/→ to select an open space.
The remaining space and the longest recording time in each of the recording modes appears.

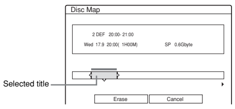


Disc Map

Empty 2.3 Gbyte
HQ[0H30M] HSP[1H00M] SP[1H30M]
LP [2H00M] EP[3H00M] SLP[4H00M]

◆ To free up disc space by erasing a title using the Disc Map

① **Press ←/→ to select the title you want to erase, then press ENTER.**
The title is selected.



Disc Map

2 DEF 20:00- 21:00
Wed 17.9 20:00(1H00M) SP 0.6Gbyte

To cancel the selection, press ENTER again.
Repeat step ① to erase multiple titles.

② **Press ↓ to select "Erase," then press ENTER.**
The display asks for confirmation.

③ **Press ←/→ to select "OK."**
All of the selected titles are erased, freeing up disc space. If you want to change your selection, select "Change."

④ **Press RETURN repeatedly to turn off the Title List menu.**

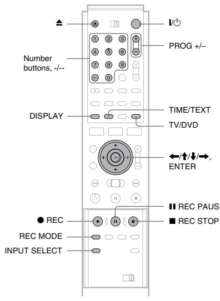
Note

You cannot erase a title during playback or recording.

Recording TV programmes

-RW VR -RW VIDEO +RW -R

Before you start…
- Check that the disc has enough available space for the recording *(page 21)*.
- When recording a bilingual programme on a DVD+RW, DVD-R, or DVD-RW (Video mode), you cannot record both sound tracks. Select the sound track, main or sub using the Options Setup Display (*page 82*).
- Adjust the recording picture quality and picture size if necessary (*page 30*).



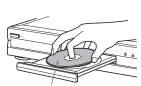
1. **Press I/⏻.**
The recorder turns on and the power indicator on the front panel lights up in green.

2. **Turn on the TV, and switch the input selector on your TV so that the signal from the recorder appears on the TV screen.**

◆ When using an amplifier (receiver)

Turn on the amplifier (receiver) and select the appropriate channel so that you can hear sound from the recorder.

3. **Press ⏏, and place a recordable disc on the disc tray.**



With the recording side facing down

4. **Press ⏏ to close the disc tray.**
Wait until "LOAD" disappears from the front panel display.
If you use an unused DVD, formatting starts automatically.
When using an unused DVD-RW, select the recording format, VR or Video.

5. **Press PROG +/– to select the programme position or input source you want to record.**

6. **Press REC MODE repeatedly to select the recording mode.**
Each time you press the button, the display changes on the TV screen as follows:

HQ → HSP → SP → LP → EP → SLP

For more details of the recording mode, *see page 21*.

7. **Press ● REC.**
Recording starts.
Recording continues until you stop the recording or the disc is full.

To stop recording

Press ■ REC STOP. Note that it may take a few seconds for recording to stop.

To pause recording

Press ❚❚ REC PAUSE. To restart recording, press the button again.

To watch another TV programme while recording

Set the TV to TV input using the TV/DVD button and select the programme you want to watch. *See "Controlling Your TV or AV Amplifier (Receiver)" in the separate booklet, "Hookups and Settings."*

About the Teletext function

Some broadcasts systems ensure a Teletext service* in which the complete programmes and their data (title, date, channel, recording start time etc.) are stored day by day. When recording a programme, the recorder automatically takes the programme name from the Teletext pages and stores it as the title name. For details, *see "TV Guide Page"* (*page 79*).
Note that the Teletext information will not appear on your TV screen. To view the Teletext information on your TV screen, press TV/DVD on the remote to switch the input source to your TV.

* not available in some areas

➡continued

Hints
- You can also start and stop recording using the Tool menu. Press TOOL and select “Record” or “Rec Stop,” then press ENTER.
- You can stop recording from the Title List menu as well. Select the title you are currently recording and press ENTER. Then select “Rec Stop” from the sub-menu.
- If you do not want to watch TV while recording, you can turn off the TV. When using a decoder, make sure to leave it on.
- To select a programme position, you can also use the number buttons in step 5 above.
- If you record from equipment connected to the recorder’s input jack, you can also use the INPUT SELECT button to select “L1,” “L2,” “L3,” “L4,” or “DV” in step 5. For details, *see “Recording from connected equipment” (page 71)*.
- You can also select the recording mode using the Tool menu (*page 30*).

Notes
- After pressing ● REC, it may take a short while to start recording.
- While recording or during recording pause, you cannot change the recording mode.
- If there is a power failure, the programme you are recording may be erased.
- You cannot watch a PAY-TV/Canal Plus programme while recording another PAY-TV/Canal Plus programme.

To record what you are watching on your TV (TV Direct Rec)

If you use the SMARTLINK connection, you can easily record what you are watching on the TV.

Press ● REC while a disc is in the recorder.
The recorder automatically turns on and starts recording what you are watching on the TV. “TV” appears in the front panel display.

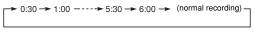
To turn off this function, set “TV Direct Rec” to “Off” in Features Setup *(page 79)*.

Notes
- You cannot record what you are watching using this method when the recorder is in the following modes: pause, tuner preset, Easy Setup, playback, and recording. You also cannot record on a protected disc.
- Do not turn off the TV or change the TV programme position during TV Direct Rec.

Using the Quick Timer function

You can set the recorder to record in 30 minute increments by pressing just the ● REC button.

Press ● REC repeatedly to set the duration time.
Each press advances the time in 30 minute increments. The maximum duration is six hours.



The time counter decreases minute by minute to 0:00, then the recorder stops recording (power does not turn off). Even if you turn off the recorder during recording, the recorder continues to record until the time counter runs out.

To cancel the Quick Timer

Press ● REC repeatedly until the counter appears in the front panel display. The recorder returns to normal recording mode.

Recording stereo and bilingual programmes

The recorder automatically receives and records stereo and bilingual programmes based on the ZWEITON system or the NICAM system.
A DVD-RW (VR mode) can record both main and sub sounds. You can switch between main and sub when playing the disc.
A DVD+RW, DVD-R, or DVD-RW (Video mode) can record only one sound track (main or sub) at a time. Select the sound track using the Setup Display before recording starts. Set “Bilingual Recording” to “Main” (default) or “Sub” in Options Setup (*page 82*).

◆ZWEITON (German stereo) system
When a stereo or bilingual ZWEITON based programme is received, “STEREO” or “BILINGUAL” appears on the front panel display.

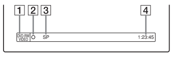
◆NICAM system
When a stereo or bilingual NICAM based programme is received, “NICAM” appears on the front panel display.
To record a NICAM programme, be sure to set “Audio” of “Channel Setting” in “Settings” to “NICAM” (default). If the sound is not clear when listening to NICAM broadcasts, set “Audio” to “Standard.” *See “Presetting channels manually” in the separate booklet, “Hookups and Settings.”*

Hint
You can select the audio (main or sub) while recording bilingual programmes using the ⊂⊃⊃ (audio) button. This does not affect the recorded sound.

Checking the disc status while recording

You can check the recording information such as recording time or disc type.

1 **Press DISPLAY twice during recording.**
The recording information appears.



1 **Disc type/format**
2 **Recording status**
3 **Recording mode**
4 **Recording time**

2 **Press DISPLAY to turn off the display.**

Creating chapters in a title

The recorder can automatically divide a recording (a title) into chapters by inserting chapter marks at 6 or 15 minute intervals during recording. Select the interval, “6Min” (default) or “15Min” in “Auto Chapter” of Features Setup (*page 79*).

Hint
You can make chapters manually when playing DVD-RWs (VR mode). For details, *see page 54*.

Notes
- If “Auto Chapter” is set to “Off” in Features Setup, no chapters are automatically created.
- A message will appear when no more chapter marks can be added. In this case, you may not be able to record or edit the disc.

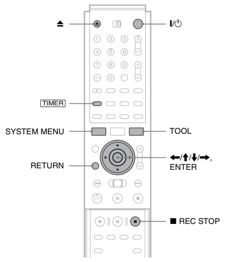
Timer Recording

You can set the timer for a total of eight programmes up to one month in advance.
There are two setting methods: the manual setting and VIDEO Plus+ setting.
- Standard: Set the date, time, and programme position of the programme manually.
- VIDEO Plus+: Enter the PlusCode number designated for each TV programme *(page 29)*.

Before you start…
- Check that the disc has enough available space for the recording *(page 21)*.
- When recording a bilingual programme on a DVD+RW, DVD-R, or DVD-RW (Video mode), you cannot record both sound tracks. Select the sound track, main or sub using the Options Setup Display (*page 82*).
- Adjust the recording picture quality and picture size if necessary (*page 30*).

Setting the timer manually (Standard)

-RW VR **-RW VIDEO** **+RW** **-R**



1 **Press I/⏻.**

2 **Turn on the TV, and switch the input selector on your TV so that the signal from the recorder appears on the TV screen.**

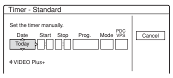
◆ When using an amplifier (receiver)
Turn on the amplifier (receiver) and select the appropriate channel so that you can hear sound from the recorder.

➡continued

3 **Press ⏏, and place a recordable disc on the disc tray.**

4 **Press ⏏ to close the disc tray.**
Wait until “LOAD” disappears from the front panel display.
If you use an unused DVD, formatting starts automatically.
When using an unused DVD-RW, select the recording format, VR or Video.

5 **Press TIMER.**
The Timer programming (Standard) menu appears.



If the Timer programming (VIDEO Plus+) menu appears, press ← to switch the display.

6 **Set the following items using ←/↑/↓/→.**

① **Press ↑/↓ to set the date, then press →.**
Each time you press ↑/↓, the item changes as follows.

Today ⟷ Tomorrow ⟷ …… ⟷ Tue 28.10 (1 month later) ⟷ Sun (every Sunday) ⟷ …… ⟷ Sat (every Saturday) ⟷ Mon-Fri (Monday to Friday) ⟷ Mon-Sat (Monday to Saturday) ⟷ Sun-Sat (Sunday to Saturday) ⟷ Today

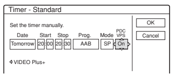
② **Press ↑/↓ to set the start time, then press →.**

③ **Press ↑/↓ to set the stop time, then press →.**

④ **Press ↑/↓ to set the programme position, then press →.**
When you set the timer for recording from connected equipment, select “Line1,” “Line2,” “Line3,” or “Line4.”

⑤ **Press ↑/↓ to select the recording mode (HQ, HSP, SP, LP, EP, or SLP), then press →.**

⑥ **Press ↑/↓ to set the PDC/VPS function “On” or “Off.”**
See “About the PDC/VPS function” below for more information.



◆ If you make a mistake
Press ←/→ to select the item you want to change.

◆ To exit without saving the current setting
Press ←/↑/↓/→ to select “Cancel,” then press ENTER.

7 **Press ←/↑/↓/→ to select “OK,” then press ENTER.**
The Timer List menu appears. The TIMER REC indicator lights up on the front panel and the recorder is ready to start recording.

8 **Press RETURN to turn off the Timer List, or press TIMER and repeat from step 5 to enter additional timer settings.**
Unlike a VCR, there is no need to turn off the recorder before the timer recording starts.

To stop recording during timer recording

Press ■ REC STOP.

To confirm, change, or cancel timer recording

See “Checking/changing/cancelling timer settings (Timer List)” (page 28).

Hints
- For recording over the next day, leave the starting date setting as it is, and enter the ending time in the setting. The date will automatically change to the next day.
- You can also display the timer programming menu by:
  - – selecting “TIMER” from the System Menu.
  - – selecting “Timer” from the Tool menu while the Timer List menu is displayed (*page 17*).
- You can also use the recorder even when the recorder stands by for recording. To remind you of the timer setting, a message appears on your TV screen five minutes before the timer recording starts.

Note
Check that the clock is correctly set before setting the timer recording. If not, the timer recording cannot be made.
To record a satellite programme, turn on the satellite tuner and select the satellite programme you want to record. Leave the satellite tuner turned on until the recorder finishes recording. If you connect equipment with a timer function, you can use the Synchro Rec function (*page 31*).

About the PDC/VPS function

PDC/VPS signals are transmitted with TV programmes in some broadcast systems. These signals ensure that timer recordings are made regardless of any broadcast delays, early starts, or broadcast interruptions.
To use the PDC/VPS function, set “PDC/VPS” to “On” in step 6 above.
When you turn on this function, the recorder starts scanning the channel before the timer recording starts. If you are watching TV when scanning starts, a message will appear on the TV screen. If you want to watch TV, switch to your TV’s tuner or turn off the PDC/VPS channel scan function.

◆ To turn off the PDC/VPS channel scan function

① **Press TOOL.**

② **Press ↑/↓ to select “PDC/VPS Scan Off.”**

To ensure that the PDC/VPS function works properly, turn off the recorder before the timer recording starts. This will automatically turn on the PDC/VPS channel scan function again.

Notes
- The beginning of some recordings may not be made when using the PDC/VPS function.
- Select “PDC/VPS Scan Off” when dubbing or editing a DV/Digital8 format tape. When finished, select “PDC/VPS Scan On” so that the timer recordings will be made.

To display the timer programming menu automatically with one button (One Touch Timer)

If you use the SMART LINK connection, you can easily display the timer programming menu by pressing just the TIMER button.

Press TIMER while a disc is in the recorder.
The TV and recorder turn on and the TV’s input is switched to the recorder. The Timer programming menu appears.

Note
When you use this function, leave the TV on, or in the standby mode.

Rec Mode Adjust

If there is not enough available disc space for the recording, the recorder automatically selects the recording mode to enable the programme to be recorded. This function is normally set to on.

◆To cancel the function

① **Press TOOL while the Timer List is displayed.**

② **Press ↑/↓ to select “Rec Mode Adjust,” then press ENTER.**

③ **Press ←/→ to select “Off,” then press ENTER.**

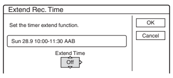
Notes
- If “DISC FULL” appears on the front panel display, change the disc, or make available space for the recording (DVD-RW/DVD+RW only).
- This function only works with a timer recording and the PDC/VPS function set to off. It does not function with Quick Timer or Synchro Rec.

To extend the recording duration time

You can extend the recording duration while recording.

1 **Press TOOL during recording.**

2 **Press ↑/↓ to select “Extend Rec,” then press ENTER.**
The following display appears.



3 **Press ↑/↓ to select the duration time, then press ENTER.**
You can set the duration in increments of 10 minutes, up to 60 minutes.

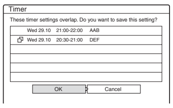
4 **Press ←/↑/↓/→ to select “OK,” then press ENTER.**

Hint
You can also extend the recording duration time using “Extend Rec” in the sub-menu of the Timer List.

Note
You cannot extend the recording duration time when “PDC/VPS” is set to “On.”

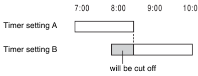
If the timer settings overlap

The following display appears.

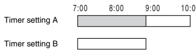

Timer
These timer settings overlap. Do you want to save this setting?
Wed 29.10 21:00-22:00 AAB
Wed 29.10 20:30-21:00 DEF
OK
Cancel

To store the setting, press ←/→ to select “OK,” then press ENTER.
To cancel or change the setting, select “Cancel.” When the Timer List menu appears, change or cancel the setting (*page 28*).

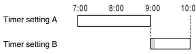
◆When the timer settings overlap
The programme that starts first has priority and the second programme starts recording only after the first programme has finished.



◆When the recordings start at the same time
The programme that is set last has priority. In this example, timer setting B is set after A, so the first part of timer setting A will not be recorded.



◆When the end time of one recording and the start time of another are the same
After finishing the previous recording, the other recording may be delayed.



Note
When “PDC/VPS” is set to “On” for one or more timer recordings, the start times may change in the event of a broadcast delay or early start.

➡continued

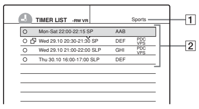
Checking/changing/cancelling timer settings (Timer List)

-RW VR -RW VIDEO +RW -R

You can check, change, or cancel timer settings using the Timer List menu.

1 Press SYSTEM MENU.
The System Menu appears.

2 Press ↑/↓ to select "TIMER LIST," then press ENTER.
The Timer List menu appears.



○ Mon-Sat 22:00-22:15 SP AAB
○ ❐ Wed 29.10 20:30-21:30 SP DEF PDC VPS
○ Wed 29.10 21:00-22:00 SLP GHI PDC VPS
○ Thu 30.10 16:00-17:00 SLP DEF

1 Disc name
To enter a disc name, *see "Labelling a disc (Disc Name)" (page 33).*

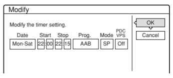
2 Timer information:
Displays the recording date, time, recording mode, etc.
- ❐ indicates the overlapped setting.
- ○ (red) indicates the setting currently being recorded.
- ● (grey) indicates that the setting cannot be recorded in the selected recording mode.

3 Press ↑/↓ to select the setting you want to check/change/cancel, then press ENTER.
The sub-menu appears.

4 Press ↑/↓ to select one of the following items.
- Modify
- Erase
- Check Overlap

◆ **To modify the setting**

① **Select "Modify," then press ENTER.**
The display for modifying appears.



Modify the timer setting.

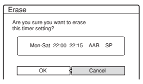
Date	Start	Stop	Prog.	Mode	PDC VPS
Mon-Sat	22:00	22:15	AAB	SP	Off

② **Press ←/↑/↓/→ to select the item and change the setting.**
To undo the change, press ←/↑/↓/→ to select "Cancel," then press ENTER or RETURN.
To change another setting, repeat step ②.

③ **Press ←/↑/↓/→ to select "OK," then press ENTER.**

◆ **To erase the setting**

① **Select "Erase," then press ENTER.**
The display asks for confirmation.



Are you sure you want to erase this timer setting?

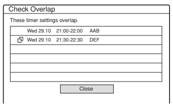
Mon-Sat 22:00 22:15 AAB SP

If you do not want to erase the setting, select "Cancel," then press ENTER or RETURN.

② **Press ←/→ to select "OK," then press ENTER.**

◆ **To check for overlapped settings**

① **Select "Check Overlap," then press ENTER.**
The display for confirming overlapped settings appears.



These timer settings overlap.

Wed 29.10 21:00-22:00 AAB
❐ Wed 29.10 21:30-22:30 DEF

② **Select "Close."**
To change or cancel the setting, press RETURN to return to the Timer List menu, and repeat steps **3** and **4** above.

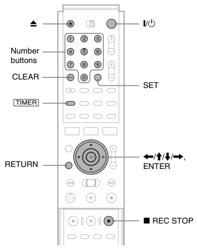
5 Press RETURN to turn off the Timer List.

Hint
While recording, you cannot modify the timer setting for the current recording but extend the recording duration time (*page 27*).

Recording TV programmes using the VIDEO Plus+ system

-RW VR -RW VIDEO +RW -R

The VIDEO Plus+ system is a feature that simplifies setting timer recordings. Just enter the PlusCode number listed in the TV programme guide. The date, time, and programme position of that programme are set automatically.
Check that the channel is correctly set in "Channel Setting" in "Settings" (*page 75*).



1 Press I/⏻.

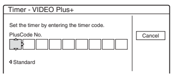
2 Turn on the TV, and switch the input selector on your TV so that the signal from the recorder appears on the TV screen.

◆ **When using an amplifier (receiver)**
Turn on the amplifier (receiver) and select the appropriate channel so that you can hear sound from the recorder.

3 Press ⏏, and place a recordable disc on the disc tray.

4 Press ⏏ to close the disc tray.
Wait until "LOAD" disappears from the front panel display.
If you use an unused DVD, formatting starts automatically.
When using an unused DVD-RW, select the recording format, VR or Video.

5 Press TIMER.
The Timer programming (VIDEO Plus+) menu appears.



Set the timer by entering the timer code.

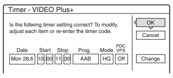
If the Timer programming (Standard) menu appears, press ← to switch the display.

6 Press the number buttons to enter the PlusCode number, then press SET.

◆ **If you make a mistake**
Press CLEAR and re-enter the correct number.

◆ **To cancel the setting**
Press ↑/↓ to select "Cancel," then press ENTER.

7 Press ↑/↓ to select "OK," then press ENTER.
The date, start and stop times, programme position or station name, recording mode, and PDC/VPS setting appears. For details about the PDC/VPS function, *see page 26.*



Is the follwing timer setting correct? To modify, adjust each item or re-enter the timer code.

Date	Start	Stop	Prog.	Mode	PDC VPS
Mon 28.6	10:00	11:30	AAB	HQ	Off

◆ **If you want to change the setting**

① **Press ←/→ to select the item you want to change.**

② **Press ↑/↓ to change the setting.**

To cancel the setting, select "Cancel."
To re-enter the PlusCode number, select "Change."

8 Press ←/↑/↓/→ to select "OK," then press ENTER.
The TIMER REC indicator lights up on the front panel, and the recorder is ready to start recording.

9 Press RETURN to turn off the display.
To record from a decoder or other source, leave the connected equipment turned on.

To stop recording during timer recording

Press ■ REC STOP.

If the timer settings overlap

See page 27.

To confirm, change, or cancel timer recording

See "Checking/changing/cancelling timer settings (Timer List)" (page 28).

→continued

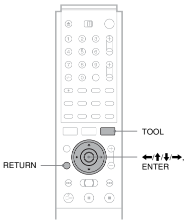
Hints
- The Rec Mode Adjust function also works with this timer setting method (*page 27*).
- You can extend the recording duration time during recording (*page 27*).
- You can also display the timer programming menu by:
  - selecting "TIMER" from the System Menu.
  - selecting "Timer" from the Tool menu while the Timer List menu is displayed (*page 17*).

Notes
- Check the clock set before setting the timer recording. If not, the timer recording cannot be made.
- You can also use the recorder even when the recorder stands by for recording. To remind you of the timer setting, a message appears on your TV screen five minutes before the timer recording starts.

Adjusting the Recording Picture Quality and Size

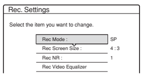
-RW VR -RW VIDEO +RW -R

You can adjust the recording picture quality and picture size.



1 Press TOOL before recording starts.
The Tool menu appears.

2 Press ↑/↓ to select "Rec Settings," then press ENTER.
The following display appears.

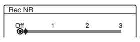


Select the item you want to change.

Rec Mode : SP
Rec Screen Size : 4 : 3
Rec NR : 1
Rec Video Equalizer

3 Press ↑/↓ to select the item you want to adjust, then press ENTER.
The adjustment display appears.

Example: Rec NR



◆ **Rec Mode**
Selects the recording mode for the desired recording time and picture quality. For more information, *see "Recording mode" (page 21).*
- HQ
- HSP
- SP (default)
- LP
- EP
- SLP

◆ **Rec Screen Size**
Sets the picture size of the programme to be recorded
- 4:3 (default): Sets the picture size to 4:3.
- 16:9: Sets the picture size to 16:9 (wide mode).

This function works with DVD-Rs and DVD-RWs (Video mode) when the recording mode is set to HQ, HSP, or SP. For all other recording modes, the screen size is fixed at "4:3."
For DVD-RWs (VR mode), the actual picture size is recorded regardless of the setting. For instance, if a 16:9 size picture is received, the disc records the picture as 16:9 even if "Rec Screen Size" is set to "4:3."
For DVD+RWs, the screen size is fixed at "4:3."

◆ **Rec NR (noise reduction)**
Reduces noise contained in the video signal.

◆ **Rec Video Equalizer**
Adjusts the picture in greater detail.
Press ↑/↓ to select the item you want to adjust, then press ENTER.
- Contrast: Changes the contrast.
- Brightness: Changes the overall brightness.
- Color: Makes the colours deeper or lighter.

4 Adjust the setting using ←/↑/↓/→, then press ENTER.
The larger the number, the greater the effect. The default setting is underlined.

Items	Settings
Rec NR	Off 1 ~ 3
Rec Video Equalizer	
Contrast	–3 ~ 0 ~ 3
Brightness	–3 ~ 0 ~ 3
Color	–3 ~ 0 ~ 3

5 Repeat steps 3 and 4 to adjust any other items.

6 Press RETURN to turn off the display.

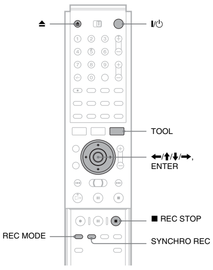
Note
The adjustments made here are for the recorder and cannot be saved for individual titles.

Recording from External Equipment with a Timer (Synchro Rec)

-RW VR -RW VIDEO +RW -R

You can set the recorder to automatically record programmes from connected equipment that has a timer function (such as a satellite tuner). Connect the equipment to the LINE 3/DECODER jack of the recorder *(see the separate booklet, "Hookups and Settings").*
When the connected equipment turns on, the recorder starts recording a programme from the LINE 3/DECODER jack.

Before you start…
- Check that the disc has enough available space for the recording *(page 21).*
- When recording a bilingual programme on a DVD+RW, DVD-R, or DVD-RW (Video mode), you cannot record both sound tracks. Select the sound track, main or sub using the Options Setup Display (*page 82*).
- Adjust the recording picture quality and picture size if necessary (*page 30*).



1 Press I/⏻.

2 Turn on the TV, and switch the input selector on your TV so that the signal from the recorder appears on the TV screen.

◆ **When using an amplifier (receiver)**
Turn on the amplifier (receiver) and select the appropriate channel so that you can hear the sound from the recorder.

3 Press ⏏, and place a recordable disc on the disc tray.

→continued

4 **Press ⏏ to close the disc tray.**
Wait until “LOAD” disappears from the front panel display.
If you use an unused DVD, formatting starts automatically.
When using an unused DVD-RW, select the recording format, VR or Video.

5 **Select the line input audio when recording a bilingual programme.**

① **Press TOOL.**

② **Press ↑/↓ to select “Line Audio Input,” then press ENTER.**

③ **Press ↑/↓ to select “Bilingual,” then press ENTER.**

6 **Press REC MODE repeatedly to select the recording mode, HQ, HSP, SP, LP, EP, or SLP.**

7 **Set the timer on the connected equipment to the time of the programme you want to record, and turn it off.**

8 **Press SYNCHRO REC.**
The SYNCHRO REC indicator lights up on the front panel. The recorder is ready to start Synchro-Recording.
The recorder automatically starts recording when it receives an input signal from the connected equipment. The recorder stops recording when the connected equipment turns off.

To stop recording

Press ■ REC STOP.

To cancel Synchro Rec

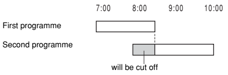
Press SYNCHRO REC. The SYNCHRO REC indicator turns off.

Notes

- The Synchro Rec function does not work with some tuners. For details, refer to the tuner’s operating instructions.
- While Synchro-Recording, other operations such as normal recording cannot be done.
- To use the connected equipment while the recorder is standing by for Synchro-Recording, cancel Synchro-Recording by pressing SYNCHRO REC. Be sure to turn off the connected equipment and press SYNCHRO REC to reset Synchro-Recording before the timer recording starts.
- The recorder starts recording only after detecting the video signal from the connected equipment. The beginning of the programme may not be recorded regardless of whether or not the recorder’s power is on or off.
- Any programme that contains a Copy-Never copy guard signal cannot be recorded. When you record a programme that contains a Copy-Once signal, use a DVD-RW (Ver. 1.1 with CPRM) in VR mode for recording. For details, *see “Unrecordable pictures” (page 21)*.
- When using the Synchro Rec function, do not use the VCR control function on connected equipment.
- The Synchro Rec function cannot be used with a decoder.

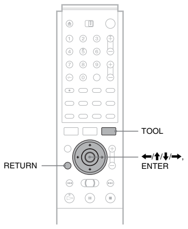
If the timer settings of a Synchro-Recording and another timer recording overlap

Regardless of whether or not the programme is a Synchro Rec programme, the programme that starts first has priority and the second programme starts recording only after the first programme has finished.



Labelling, Protecting, or Finalizing the Disc

Using the Disc Information display, you can label, protect, or finalize your disc. You can even erase the entire disc except for the protected titles. This section explains settings effective for the entire disc.



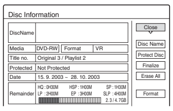
Labelling a disc (Disc Name)

-RW VR **-RW VIDEO** **+RW** **-R**

You can enter up to 64 characters for a disc name (the actual number of displayed characters will vary). The disc name will be displayed in the Title List, etc.

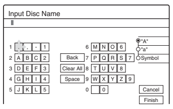
1 **Press TOOL while the disc is in the recorder.**
The Tool menu appears.

2 **Press ↑/↓ to select “Disc Info,” then press ENTER.**
The Disc Information display appears.
Example: When the inserted disc is a DVD-RW (VR mode).



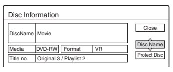
Disc Information
DiscName
Media DVD-RW Format VR
Title no. Original 3 / Playlist 2
Protected Not Protected
Date 15. 9. 2003 ~ 28. 10. 2003
Remainder HQ : 0H30M HSP : 1H00M SP : 1H30M LP : 2H00M EP : 3H00M SLP : 4H00M 2.3 / 4.7GB

3 **Press ↑/↓ to select “Disc Name,” then press ENTER.**
The display for entering a disc name appears.



Input Disc Name

4 **Enter a name by following the explanation on *page 18*.**
The Disc Information display appears with the new disc name.



Disc Information
DiscName Movie
Media DVD-RW Format VR
Title no. Original 3 / Playlist 2

5 **Press RETURN to turn off the display.**

Note

The disc name will not appear when the disc is played on a different recorder.

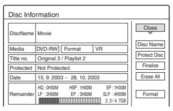
Protecting a disc (Protect Disc)

-RW VR

You can protect an entire disc. To protect individual titles, *see page 51*.
Note that this protection is effective only for inadvertent edit commands and erasure.

1 **Press TOOL while the disc is in the recorder.**
The Tool menu appears.

2 **Press ↑/↓ to select “Disc Info,” then press ENTER.**
The Disc Information display appears.

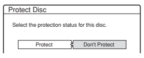


Disc Information
DiscName Movie
Media DVD-RW Format VR
Title no. Original 3 / Playlist 2
Protected Not Protected
Date 15. 9. 2003 ~ 28. 10. 2003
Remainder HQ : 0H30M HSP : 1H00M SP : 1H30M LP : 2H00M EP : 3H00M SLP : 4H00M 2.3 / 4.7GB

➡continued

---

3 **Press ↑/↓ to select “Protect Disc,” then press ENTER.**
The display for setting disc protection appears.



Protect Disc
Select the protection status for this disc.

4 **Press ←/→ to select “Protect,” then press ENTER.**
The display returns to the Disc Information display.

5 **Press RETURN to turn off the display.**

To cancel the disc protection

1 **Repeat steps 1 to 3 above.**
The display for setting disc protection appears.

2 **Press ←/→ to select “Don’t Protect.”**
The display returns to the Disc Information display.

3 **Press RETURN to turn off the display.**

Finalizing a disc (Finalize)

-RW VR **-RW VIDEO** **+RW** **-R**

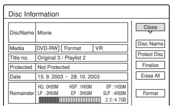
Finalizing is necessary when you play discs recorded with this recorder on other DVD equipment.
Before finalizing, check the differences between the disc types on the table below.
When you finalize a DVD-RW (Video mode), DVD+RW, or DVD-R, a title menu will be automatically created, which can be displayed on other DVD equipment.
When a finalized disc is in the recorder, the FINALIZED indicator lights up on the front panel.

Differences between the disc types

-RW VR	Finalizing is unnecessary when playing a disc on VR format compatible equipment. You may need to finalize the disc depending on the DVD equipment, or if the recording time is short. You can edit or record on the disc even after finalizing.
+RW	Finalizing is unnecessary, since DVD+RWs are automatically finalized when removed from the recorder. However, you may need to finalize the disc by following the steps below for certain DVD equipment, or if the recording time is short. You can edit or record on the disc even after finalizing.
-RW VIDEO	Finalizing is necessary when playing on equipment other than this recorder. After finalizing, you cannot edit or record on the disc. If you want to record on it again, reformat the disc *(page 35)*. However, all contents recorded in the disc will be erased.
-R	Finalizing is necessary when playing on equipment other than this recorder. After finalizing, you cannot edit or record on the disc.

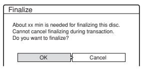
1 **Press TOOL while the disc is in the recorder.**
The Tool menu appears.

2 **Press ↑/↓ to select “Disc Info,” then press ENTER.**
The Disc Information display appears.



Disc Information
DiscName Movie
Media DVD-RW Format VR
Title no. Original 3 / Playlist 2
Protected Not Protected
Date 15. 9. 2003 ~ 28. 10. 2003
Remainder HQ : 0H30M HSP : 1H00M SP : 1H30M LP : 2H00M EP : 3H00M SLP : 4H00M 2.3 / 4.7GB

3 **Press ↑/↓ to select “Finalize,” then press ENTER.**
The display shows the approximate time required for finalizing and asks for confirmation.



Finalize
About xx min is needed for finalizing this disc.
Cannot cancel finalizing during transaction.
Do you want to finalize?

4 **Press ←/→ to select “OK,” then press ENTER.**
The recorder starts finalizing the disc.

To unfinalize a disc

If you cannot record or edit on the DVD-RW (VR mode) that has been finalized with other DVD equipment (a message appears), unfinalize the disc.
Select “Unfinalize” in step 3 above.

Hint

You do not need to finalize a disc again once the disc has been finalized with this recorder.

Notes

- Depending on the condition of the disc, recording, or the DVD equipment, discs may not play even when the discs are finalized.
- The recorder may not be able to finalize the disc if it was recorded on another recorder.

Erasing all the titles on the disc (Erase All)

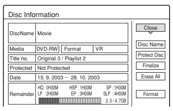
-RW VR **-RW VIDEO** **+RW**

You can erase all the titles on the disc except the titles you have set protection.
The disc name and recording format remain the same.

1 **Press TOOL while the disc is in the recorder.**
The Tool menu appears.

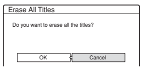
---

2 **Press ↑/↓ to select “Disc info,” then press ENTER.**
The Disc Information display appears.



Disc Information
DiscName Movie
Media DVD-RW Format VR
Title no. Original 3 / Playlist 2
Protected Not Protected
Date 15. 9. 2003 ~ 28. 10. 2003
Remainder HQ : 0H30M HSP : 1H00M SP : 1H30M LP : 2H00M EP : 3H00M SLP : 4H00M 2.3 / 4.7GB

3 **Press ↑/↓ to select “Erase All,” then press ENTER.**
The display asks for confirmation.
When there is a protected title on the disc, a list of protected titles appears.



Erase All Titles
Do you want to erase all the titles?

4 **Press ←/→ to select “OK,” then press ENTER.**
The titles are erased.

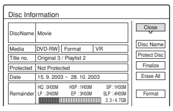
Reformatting a disc (Format)

-RW VR **-RW VIDEO** **+RW**

By reformatting, you can change the recording format of DVD-RWs, or record again on DVD-RWs (Video mode) that have been finalized. Make sure nothing important is left on the disc, as all the disc contents will be erased. For DVD+RWs, reformat the disc if you want to create a blank disc.

1 **Press TOOL while the disc is in the recorder.**
The Tool menu appears.

2 **Press ↑/↓ to select “Disc Info,” then press ENTER.**
The Disc Information display appears.

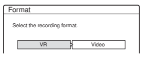


Disc Information
DiscName Movie
Media DVD-RW Format VR
Title no. Original 3 / Playlist 2
Protected Not Protected
Date 15. 9. 2003 ~ 28. 10. 2003
Remainder HQ : 0H30M HSP : 1H00M SP : 1H30M LP : 2H00M EP : 3H00M SLP : 4H00M 2.3 / 4.7GB

3 **Press ↑/↓ to select “Format,” then press ENTER.**
The display asks for confirmation.

4 **Press ←/→ to select “OK,” then press ENTER.**

◆ **When you place a DVD-RW and set “Format Disc” to “Selectable” in Options Setup**
The display asks you to select the recording format.



Format
Select the recording format.

Press ←/→ to select “VR” or “Video,” then press ENTER.

The recorder starts formatting the disc.

Notes

- Even when you have set protection for the title, all the contents will be erased after formatting the disc.
- A protected disc cannot be reformatted (DVD-RW in VR mode only).

Playback

This section explains the basics of playback, such as playable disc types, and describes the settings necessary for playback in general.

- *Before Playing. . . . . page 36*
- *Playing Discs* -RW VR -RW VIDEO +RW -R DVD CD *. . . . . page 37*
- *Selecting a Recorded Title on a Disc* -RW VR -RW VIDEO +RW -R *. . . . . page 40*
- *Searching for a Title/Chapter/Track* -RW VR -RW VIDEO +RW -R DVD CD *. . . . . page 42*
- *Checking the Play Information and Playing Time* -RW VR -RW VIDEO +RW -R DVD CD *. . . . . page 43*
- *Selecting the Sound* -RW VR DVD CD *. . . . . page 44*
- *TV Virtual Surround Settings (TVS)* DVD *. . . . . page 45*
- *Changing the Angles* DVD *. . . . . . . page 46*
- *Displaying the Subtitles* DVD *. . . . . page 47*
- *Adjusting the Playback Picture and Sound* +RW -RW VR -RW VIDEO -R DVD *. . . . . page 47*

Before Playing

Read the following information before playing a disc.

Playable discs

This recorder can play the following discs in both the 12 cm and 8 cm sizes.

◆Disc types

DVD VIDEO*	DVD VIDEO
DVD-RW* Ver. 1.0 Ver. 1.1 Ver. 1.1 with CPRM	DVD RW
DVD+RW*	RW DVD+ReWritable
DVD-R*	DVD R R4.7
DVD+R*	RW DVD+R
Music CD	COMPACT disc DIGITAL AUDIO
CD-R/CD-RW (Music CD format only)	COMPACT disc Recordable ReWritable

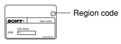
* "DVD VIDEO," "DVD-RW," "DVD+R," "DVD+RW," and "DVD-R" are trademarks.

Region code (DVD VIDEO only)

Your recorder has a region code printed on the rear of the unit and will only play DVD VIDEOs (playback only) labelled with identical region codes. This system is used to protect copyrights.

DVD VIDEOs labelled ALL will also play on this recorder.

If you try to play any other DVD VIDEO, the message "Playback prohibited by region code." will appear on the TV screen. Depending on the DVD VIDEO, no region code indication may be labelled even though playing the DVD VIDEO is prohibited by area restrictions.



Discs that cannot be played on this recorder

The recorder cannot play the following discs:

- All CD-ROMs (including PHOTO CDs)
- CD-Rs/CD-RWs, other than those recorded in the music CD format
- Data part of CD-Extras
- VIDEO CDs
- Super VCDs
- DVD-ROMs
- DVD Audio discs
- DVD-RAMs
- HD layer on Super Audio CDs
- DVD VIDEOs with a different region code *(page 36)*

Notes on playing DTS sound tracks on a CD

- When playing DTS-encoded CDs, excessive noise will be heard from the analog stereo jacks. To avoid possible damage to the audio system, the consumer should take proper precautions when the analogue stereo jacks of the recorder are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1-channel decoder system must be connected to the digital jack of the recorder.
- Set the sound to "Stereo" using the ⊙⊙ (audio) button when you play DTS sound tracks on a CD *(page 44)*.
- Do not play DTS sound tracks without first connecting the recorder to an audio component having a built-in DTS decoder. The recorder outputs the DTS signal via the DIGITAL OUT (COAXIAL or OPTICAL) jack even if "DTS" is set to "Off" in the Audio Setup *(page 79)*, and may affect your ears or cause your speakers to be damaged.

Notes on playing DVDs with a DTS sound track

- DTS audio signals are output only through the DIGITAL OUT (COAXIAL or OPTICAL) jack.
- When you play a DVD with DTS sound tracks, set "DTS" to "On" in the Audio Setup *(page 79)*.
- If you connect the recorder to audio equipment without a built-in DTS decoder, do not set "DTS" to "On" in the Audio setup *(page 79)*. A loud noise may come out from the speakers, affecting your ears or causing the speakers to be damaged.

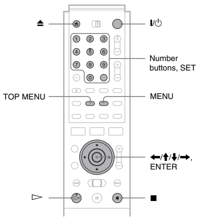
Notes

- The following type of high-speed discs can be played back on this recorder: up to 2×-speed DVD-RWs (Revision 1.0), up to 4×-speed DVD-Rs (Revision 1.0), or up to 4×-speed DVD+RWs/DVD+Rs.
- DVD-RW/-Rs, DVD+RWs/+Rs, or CD-RW/-Rs recorded on another recording device cannot be played on this recorder if they have not been correctly finalized. Some discs cannot be played due to the recording quality or physical condition of the disc, or the characteristics of the recording device and authoring software.

Playing Discs

-RW VR -RW VIDEO +RW -R DVD CD

Depending on the disc, some operations may differ, or certain restrictions may apply. Refer to the operating instructions supplied with your disc.



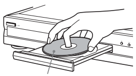
1 Press I/⏻.
The recorder turns on and the power indicator lights up in green.

2 Turn on the TV, and switch the input selector on your TV so that the signal from the recorder appears on the TV screen.

◆ When using an amplifier
Turn on the amplifier (receiver) and select the appropriate channel so that you can hear sound from the recorder.

3 Press ⏏ to open the disc tray.

4 Place a disc on the disc tray.



With the playing side facing down

5 Press ⏏ to close the disc tray.
Wait until "LOAD" disappears in the front panel display.

➡continued

◆ When playing a DVD-RW/DVD+RW/DVD-R
You can select the title from the Title List menu. *See "Selecting a Recorded Title on a Disc" (page 40).*

◆ If a menu appears on the TV screen
See "Using the DVD's Menu" below.

6 Press ▷.
The recorder starts playback.

To adjust the volume

Adjust the volume of your TV or amplifier (receiver).

To stop playback

Press ■.

To turn off the recorder

Press I/⏻.

Hint
You can also start or stop playback using the Tool menu.

To start playback automatically with one button (One Touch Play)

If you use the SMARTLINK connection, you can turn on the recorder and the TV, set your TV's input to the recorder, and start playback automatically with one button.

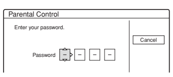
Press ▷ while a disc is in the recorder.
The TV and recorder turn on and the TV's input is switches to the recorder. Playback starts automatically.

Note
When you use this function, leave the TV on, or in the standby mode.

To play a DVD VIDEO for which Parental Control is set

When the message "Do you want to temporarily change parental control to *?" appears on the TV screen, follow steps below.

1 **Press ←/→ to select "OK," then press ENTER.**
The display for entering your password appears.



Parental Control
Enter your password.
Password – – – –
Cancel

2 **Enter your four digit password using the number buttons.**
The cursor moves to "OK."

3 **Press ENTER to select "OK."**
The recorder starts playback.

To register or change the password, *see "Parental Control (DVD VIDEO only)" (page 80).*

Using the DVD's Menu

-RW VIDEO +RW -R DVD

When you play a DVD VIDEO which contains several titles, you can select the title you want using the TOP MENU or MENU button.
When you play DVD VIDEOs that allow you to select items such as the language for the subtitles and the language for the sound, select these items using the MENU button.

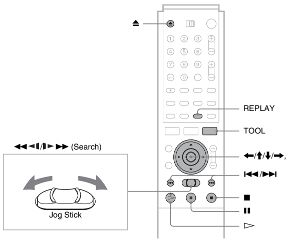
1 Press TOP MENU or MENU.
The disc's menu appears on the TV screen.
The contents of the menu vary from disc to disc.

2 Press ←/↑/↓/→ or the number buttons to select the item you want to play or change.

3 Press ENTER.

Hint
If you are playing a finalized DVD-R, DVD+RW, or DVD-RW (Video mode), you can display the menu with the TOP MENU or MENU button. *See "Finalizing a disc (Finalize)" (page 34)* for more information about finalizing and DVD menus.

Basic operations/Changing the playback speed



To:	Operations	Discs
Pause	Press ❚❚. To resume playback, press ❚❚ or ▷.	All discs
Locate the beginning of the title/chapter/track	During playback, press ⏭ or ⏮. • ⏭ : Goes to the next title/chapter/track. • ⏮ : Goes back to the beginning of the previous title/chapter/track. For DVD-RWs (VR mode), you can manually add chapter marks (*page 54*).	All discs
Stop play and remove the disc	Press ⏏.	All discs
Replay the previous scene	Press REPLAY. This function is useful when you want to review a scene or dialogue you missed.	DVD -R -RW VIDEO +RW -RW VR
Fast forward/fast reverse (search)	While playing a disc, briefly push the Jog Stick to the left or right. Each time you push the Jog Stick, the search speed changes as follows: fast reverse ◀◀◀▮ fast forward ▮▶▶▶ FR1 ← → FF1 FR2 ← ← → → FF2 FR3* ← ← ← → → → FF3* To resume to the normal speed, press ▷. When you push and hold the Jog Stick down to the left or right, fast forward/fast reverse continues at the selected speed until you release the Jog Stick. Actual speeds may differ with some discs or recording modes. * Music CDs cannot be played at FR3/FF3.	All discs
Frame by frame (Slow-motion play)	Push ◀◀◀▮/▮▶▶▶ Jog Stick for more than one second when the recorder is in pause mode. To return to the normal speed, press ▷.	DVD -R -RW VIDEO +RW -RW VR
Watch one frame at a time (Freeze Frame)	Push ◀◀◀▮/▮▶▶▶ Jog Stick briefly when the recorder is in pause mode. To return to the normal speed, press ▷.	DVD -R -RW VIDEO +RW -RW VR

➡continued

To resume playback from the point where you stopped the disc (Resume Play)

When you stop the disc, the recorder remembers the point where you pressed ■.

- For DVDs:
  Resume Play works as long as you do not open the disc tray (you may turn off the recorder).
- For CDs:
  Resume Play works as long as you do not turn off the recorder or open the disc tray.

1 **While playing a disc, press ■ to stop playback.**
"RESUME" appears on the front panel display.
If "RESUME" does not appear, Resume Play is not available.

2 **Press ▷.**
The recorder starts playback from the point where you stopped the disc in step 1.

◆To play from the beginning of the disc

Reset the resume point using the Tool menu.
Press TOOL and press ↑/↓ to select "Reset Resume," then press ENTER.

◆To play from the beginning of the title

You can locate the beginning of the title/track using the Tool menu. Press TOOL and press ↑/↓ to select "Play From Start," then press ENTER. Playback automatically starts from the beginning of the title.

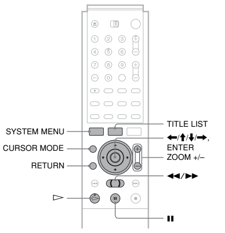
Notes

- Depending on the disc, the recorder may not resume playback from where you stopped the disc.
- Depending on where you stopped the disc, the recorder may not resume playback from exactly the same point.
- The point where you stopped playing is cleared when:
  - you open the disc tray.
  - you play another title.
  - you switch the Title List menu (Original or Playlist).
  - you edit the disc, such as erasing a title.
  - you change the settings on the recorder.
  - you turn off the recorder (CD only).
  - you make a recording (except for DVD-RWs in VR mode).

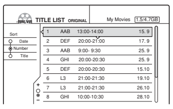
Selecting a Recorded Title on a Disc

-RW VR -RW VIDEO +RW -R

The Title List menu displays all the titles recorded on the disc and you can select the one you want to play. For details, *see also page 15.*



1 **Insert a disc and press TITLE LIST.**
The Title List menu appears.
For a DVD-RW (VR mode), select "Original" or "Playlist" using the Tool menu *(page 16)*.



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

2 **Press ↑/↓ to select the title, then press ENTER.**
The sub-menu appears.

3 **Press ↑/↓ to select "Play," then press ENTER.**
Playback starts from the selected title on the disc.

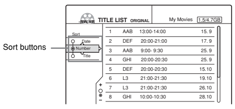
Hints

- You can also display the Title List menu using the System Menu. Press SYSTEM MENU and select "TITLE LIST," then press ENTER *(page 15)*.
- You can select Page mode by pressing CURSOR MODE *(page 16)*. In Page mode, you can change the page of the Title List using ↑/↓.
- You can also use the ▷ button to start playback.
- To change the title name, *see "Labelling a title (Title Name)" (page 51)*. If the programme contains Teletext signals, the title name will automatically appear in the Title List.

To change the title order (Sort)

You can sort the titles according to date, number, or title.

1 **Press ← while the Title List menu is turned on.**
The Sort buttons are selected.



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

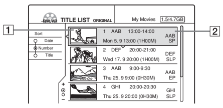
2 **Press ↑/↓ to select date, number, or title, then press ENTER.**
The titles are sorted in selected order.

Order	Sorted
Date	in order of date (when the titles were recorded). The title that is recorded most recently is listed at the top.
Number	in order of recorded title number.
Title	in alphabetical order. A title that has no name is listed at the bottom.

To show the list in greater detail (Zoom)

Press ZOOM+ while the Title List menu is turned on to view detailed information about the title.
To return to the normal Title List menu, press ZOOM–.

Example: DVD-RW (VR mode)



1 AAB 13:00-14:00	Mon 5. 9 13:00 (1H00M)	AAB SP
2 DEF 20:00-21:00	Wed 17. 9 20:00 (1H00M)	DEF SLP
3 AAB 9:00-9:30	Thu 25. 9 9:00 (0H30M)	AAB EP
4 GHI 20:00-20:30	Thu 25. 9 20:00 (0H30M)	GHI SLP

1 **Title's thumbnail picture**

2 **Title information:**
Displays the title number, title name, date/time of recording, programme position, and recording mode*.
- 🔒 indicates that the title is protected.
- ● indicates that the title is being recorded.
- DV indicates that the title is recorded from the DV input.

* The displayed recording mode refers to the mode selected when the programme was recorded on this recorder.

To display the Title List automatically with one button (One Touch Menu)

If you use the SMART LINK connection, you can easily display the Title List menu by pressing just the TITLE LIST button.

Press TITLE LIST while a disc is in the recorder.
The TV and recorder turn on and the TV's input is switched to the recorder.
The Title List menu appears.

Note

When you use this function, leave the TV on, or in the standby mode.

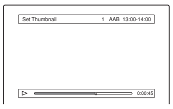
To change a title thumbnail picture (Thumbnail) (DVD-RW in VR mode only)

You can select a favourite scene for a thumbnail picture in a zoomed Title List menu.

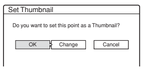
1 **Press TITLE LIST while a disc is in the recorder.**
The Title List menu appears.

2 **Press ↑/↓ to select a title whose thumbnail picture you want to change, then press ENTER.**
The sub-menu appears.

3 **Press ↑/↓ to select "Set Thumbnail," then press ENTER.**
The display for setting a thumbnail picture appears.
The selected title starts to play in the background.



4 **While watching the playback picture, press ▷, II, or ◀◀/▶▶ to select the scene you want to set for a thumbnail picture, then press ENTER.**
Playback pauses at the selected scene, and the display asks for confirmation.



Do you want to set this point as a Thumbnail?

To change the selection, select "Change."

5 **Press ←/→ to select "OK," then press ENTER.**
The scene is set for the title's thumbnail picture.

6 **Press RETURN to turn off the display.**

Hint

After recording, the first scene of the recording (the title) is automatically set for the thumbnail picture.

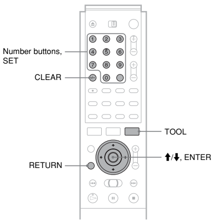
Note

Title thumbnail pictures are displayed only on this recorder.

Searching for a Title/Chapter/Track

-RW VR -RW VIDEO +RW -R DVD CD

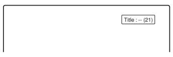
You can search a DVD by title or chapter, and a CD by track. Since titles and tracks are assigned unique numbers on the disc, you can select the desired title/chapter/track by entering its number. Or, you can search for a scene using the time code.



1 **Press TOOL during playback.**
The Tool menu appears.

2 **Press ↑/↓ to select the search method, then press ENTER.**
- Title Search (for DVDs)
- Chapter Search (for DVDs)
- Track Search (for CDs)
- Time Search (for DVDs): Searches for a starting point by entering the time code.

The display for entering the number appears.
Example: Title Search



The number in parentheses indicates the total number of titles, tracks, etc.

3 **Press the number buttons to select the number of the title, chapter, track, time code, etc., you want.**
For example: Time Search
To find a scene at 2 hours, 10 minutes, and 20 seconds, enter "21020."

◆ If you make a mistake

Press CLEAR to cancel the number, then select another number.

4 **Press SET.**
The recorder starts playback from the selected title/chapter/track/scene.

To cancel searching

Press RETURN.

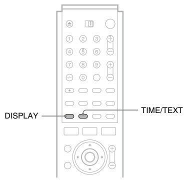
Notes

- You cannot search for a still picture on a DVD-RW (VR mode) using Time Search.
- If you enter a number that does not exist, the current selection does not change.

Checking the Play Information and Playing Time

-RW VR -RW VIDEO +RW -R DVD CD

You can check the playing time and remaining time of the current title, chapter, or track. Also, you can check the disc name recorded on the disc.



Press DISPLAY repeatedly.

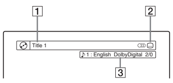
Each time you press the button, the display changes as follows:

Title/track information (Display 1)
↓
Play mode/time information (Display 2)
↓
(Display off)

The displays differ depending on the disc type or playing status.

◆ Display 1

Example: When playing a DVD VIDEO



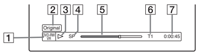
1 **Title/track number/name**

2 **Available disc functions (angle/audio/subtitle, etc.)**

3 **The current selected function or audio setting (appears only temporarily)**

◆ Display 2

Example: When playing a DVD-RW (VR mode)



1 **Disc type/format (*page 20*)**

2 **Title type (Original or Playlist) (*page 16*)**

3 **Play mode**

4 **Recording mode* (*page 21*)**

5 **Playing status bar**

6 **Title number (*page 40*)**

7 **Playing time**

* The displayed recording mode refers to the mode selected when the programme was recorded on this recorder.

To check the remaining time

Press TIME/TEXT repeatedly while the Display 2 is displayed above.
Each time you press the button, the display changes in the following order.

◆When playing a DVD

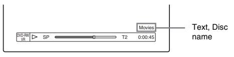
- Playing time of the current title (hours: minutes: seconds)
- Remaining time of the current title
- Playing time of the current chapter
- Remaining time of the current chapter
- Disc name (DVD-RW/DVD+RW/DVD-R only)

◆When playing a CD

- Playing time of the current track (minutes: seconds)
- Remaining time of the current track
- Playing time of the current disc
- Remaining time of the current disc
- Disc name

To check the disc name (except DVD VIDEO)

Press TIME/TEXT repeatedly while the Display 2 is displayed. The text appears only when text is recorded on a CD, or if you input the disc's name. To label a DVD-RW/DVD+RW/DVD-R, *see "Labelling a disc (Disc Name)" (page 33)*.



Hint

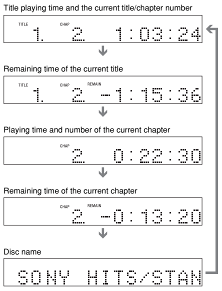
When "Auto Display" is set to "On" (default) in Options Setup *(page 82)*, playback information automatically appears for several seconds after starting playback.

➡continued

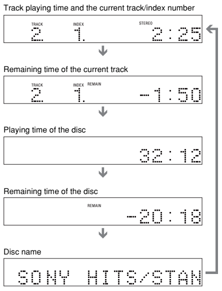
Checking the playing time on the front panel display

You can view the playing or time information and text displayed on the TV screen also on the front panel display.
Press TIME/TEXT repeatedly.
Each press of the button changes the information as follows:

◆When playing a DVD


Title playing time and the current title/chapter number
TITLE CHAP 1. 2 1:03:24
Remaining time of the current title
TITLE CHAP REMAIN 1. 2 -1:15:36
Playing time and number of the current chapter
CHAP 2 0:22:30
Remaining time of the current chapter
CHAP REMAIN 2 -0:13:20
Disc name
SONY HITS/STAN

◆When playing a CD


Track playing time and the current track/index number
TRACK INDEX STEREO 2 1. 2:25
Remaining time of the current track
TRACK INDEX REMAIN 2 1. -1:50
Playing time of the disc
32:12
Remaining time of the disc
REMAIN -20:18
Disc name
SONY HITS/STAN

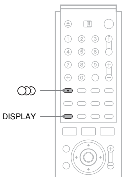
Hint
Long text that does not fit in a single line will scroll across the front panel display.

Notes
- Depending on the type of disc being played, the disc's text may not be displayed.
- The recorder can only display the first level of a CD's text, such as the disc name or title.
- The letters or symbols that cannot be displayed are replaced with "*."

Selecting the Sound

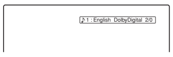
-RW VR **DVD** **CD**

When playing a DVD VIDEO recorded in multiple audio formats (PCM, Dolby Digital, MPEG audio, or DTS), you can select the audio format. If a DVD VIDEO is recorded with multilingual tracks, you can also change the language.
With CDs, you can select the sound from the right or left channel and listen to the sound of the selected channel through both the right and left speakers. For example, when playing a disc containing a song with the vocals on the right channel and the instruments on the left channel, you can listen to the instruments only from both speakers, by selecting the left channel.



Press (audio) repeatedly during playback to select one of the audio options.
The following display appears.

Example: DVD VIDEO



◆When playing a DVD VIDEO
Depending on the DVD VIDEO, the choice of language varies. When four numbers are displayed, they indicate a language code. To see which language the code represents, *see "Language Code List" (page 92)*. When the same language is displayed two or more times, the DVD VIDEO is recorded in multiple audio formats.

◆When playing a DVD-RW in VR mode
The types of sound tracks recorded on a disc are displayed. The default setting is underlined.
Example:
- 1: Main (main sound)
- 1: Sub (sub sound)
- 1: Main/Sub (main and sub sound)

◆When playing a CD
The default setting is underlined.
- Stereo: The standard stereo sound
- 1/L: The sound of the left channel (monaural)
- 2/R: The sound of the right channel (monaural)

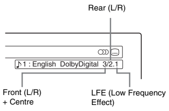
Notes
- Depending on the disc, you may not be able to change the audio format.
- When playing a DVD-RW in VR mode: If you connected to an AV amplifier (receiver) using the DIGITAL OUT (COAXIAL or OPTICAL) jack and want to switch between the sound tracks, set "Dolby Digital" in Audio Setup to "D-PCM."

Checking the audio signal format

When playing a DVD, you can check the format of the current audio signal (Dolby Digital, MPEG audio, DTS, PCM, etc.).

Press DISPLAY.
The following display appears.

Example: Dolby Digital 5.1 ch



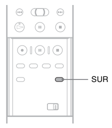
◆About audio signals
Audio signals recorded in a disc contain the sound elements (channels) shown below. Each channel is output from a separate speaker.
- Front (L)
- Front (R)
- Centre
- Rear (L)
- Rear (R)
- Rear (Monaural): This signal can be either Dolby Surround Sound processed signals or Dolby Digital sound's monaural rear audio signals.
- LFE (Low Frequency Effect) signal

Note
If "DTS" is set to "Off" in Audio Setup, the DTS track selection option will not appear on the screen even if the disc contains DTS tracks *(page 79)*.

TV Virtual Surround Settings (TVS)

DVD

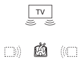
When you connect a stereo TV or two front speakers, TVS (TV Virtual Surround) lets you enjoy surround sound effects by using sound imaging to create virtual rear speakers from the sound of the front speakers (L: left, R: right) without using actual rear speakers.
TVS was developed by Sony to produce surround sound for home use using just a stereo TV.



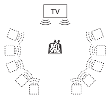
Press SUR repeatedly during playback to select one of the TVS sounds.
Refer to the following explanations given for each item.
- Off
- Dynamic
- Wide
- Night
- Standard

TV Virtual Surround modes

◆Dynamic
Creates one set of virtual rear speakers from the sound of the actual front speakers (L, R) as shown below.
This mode is effective when the distance between the front L and R speakers is short, such as with built-in speakers on a stereo TV.



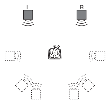
◆Wide
Creates five sets of virtual rear speakers from the sound of the actual front speakers (L, R) as shown below.
This mode is effective when the distance between the front L and R speakers is short, such as with built-in speakers on a stereo TV.



➡continued

◆Night
Large sounds, such as explosions, are suppressed, but quieter sounds are unaffected. This feature is useful when you want to hear the dialogue and enjoy the surround sound effects of "Wide" at low volume.

◆Standard
Creates three sets of virtual rear speakers from the sound of the actual front speakers (L, R) as shown below.
This mode is effective when you use two separate front speakers.



L: Front speaker (left)
R: Front speaker (right)
⬚: Virtual speaker

To cancel the setting

Select "Off".

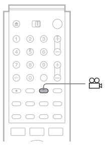
Hint
You can select the TVS mode from the Tool menu (*page 48*).

Notes
- When the playing signal does not contain a signal for the rear speakers, the surround effects will be difficult to hear.
- When you select one of the surround modes, turn off the surround setting of the connected TV or amplifier (receiver).
- Make sure that your listening position is between and at an equal distance from your speakers, and that the speakers are located in similar surroundings.
- Not all discs will respond to the "Night" function in the same way.
- The TVS function cannot be used with discs recorded on this recorder.
- When you use the DIGITAL OUT (OPTICAL or COAXIAL) jack to listen to MPEG audio signals and set "MPEG" to "MPEG" in Audio Setup, no sound will come from your speakers if you select one of the TVS modes.

Changing the Angles

DVD

If various angles (multi-angles) for a scene are recorded on a DVD VIDEO, "ANGLE" appears in the front panel display, indicating that you can change the viewing angle.



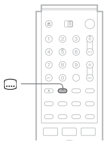
Press (angle) repeatedly during playback to select an angle.
The scene changes to the selected angle.

Notes
- Depending on the DVD VIDEO, you may not be able to change the angles even if multi-angles are recorded on the disc.
- You cannot change the angles when playing a disc recorded on this recorder.

Displaying the Subtitles

DVD

If subtitles are recorded on a disc you can change the subtitle language or turn the subtitles on and off whenever you want during playback.



Press (subtitle) repeatedly during playback to select a setting.

Depending on the DVD VIDEO, the choice of language varies. When four numbers are displayed, they indicate a language code. To see which language the code represents, *see "Language Code List"(page 92)*.

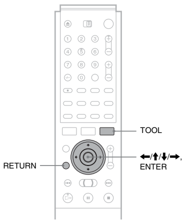
To turn off the subtitles

Select "Off".

Notes
- Depending on the DVD VIDEO, you may not be able to change the subtitle language even if multilingual subtitles are recorded on it. You also may not be able to turn them off.
- You cannot change the subtitles when playing a disc recorded on this recorder.

Adjusting the Playback Picture and Sound

You can adjust the video/audio signal from the recorder to obtain the picture or sound quality you want.

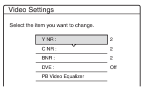


Adjusting the picture quality

-RW VR **-RW VIDEO** **+RW** **-R** **DVD**

1. **Press TOOL during playback.**
   The Tool menu appears.

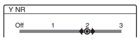
2. **Press ↑/↓ to select "Video Settings," then press ENTER.**
   The following display appears.



Video Settings
Select the item you want to change.
Y NR : 2
C NR : 2
BNR : 2
DVE : Off
PB Video Equalizer

3. **Press ↑/↓ to select the item you want to adjust, then press ENTER.**
   The adjustment display appears.

   Example: Y NR



◆ Y NR (luminance noise reduction)
Reduces noise contained in the luminance element of the video signal.

➡continued

◆ **C NR (chroma noise reduction)**
Reduces noise contained in the colour element of the video signal.

◆ **BNR (block noise reduction)**
Reduces “block noise” or mosaic like patterns in the picture.

◆ **DVE (digital video enhancer)**
Sharpens the outlines of the images.

◆ **PB Video Equalizer (Playback video equalizer)**
Adjusts the picture in greater detail.
Press ↑/↓ to select the item you want to adjust, then press ENTER.

- Contrast: changes the contrast.
- Brightness: changes the overall brightness.
- Color: makes the colours deeper or lighter.
- Hue: changes the colour balance.

4 **Press ←/→ to adjust the setting, then press ENTER.**
The larger the number, the greater the effect. The default settings are underlined.

Items	Settings
Y NR	Off 1 2 3
C NR	Off 1 2 3
BNR	Off 1 2 3
DVE	Off 1 2 3
PB Video Equalizer	
Contrast	–3 ~ 0 ~ 3
Brightness	–3 ~ 0 ~ 3
Color	–3 ~ 0 ~ 3
Hue	–3 ~ 0 ~ 3

5 **Repeat steps 3 and 4 to adjust any other items.**

6 **Press RETURN to turn off the display.**

Notes

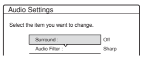
- If the outlines of the images on your screen become blurred, set “BNR” to “Off.”
- Depending on the disc or the scene being played, the BNR effect may be hard to discern. The BNR function may not work with some screen sizes.
- When playing a disc recorded in SLP recording mode, the BNR setting may have little effect.

Adjusting the sound quality

-RW VR -RW VIDEO +RW -R DVD CD

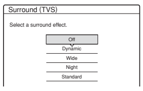
1 **Press TOOL.**
The Tool menu appears.

2 **Press ↑/↓ to select “Audio Settings,” then press ENTER.**
The following display appears.



Audio Settings
Select the item you want to change.
Surround : Off
Audio Filter : Sharp

3 **Press ↑/↓ to select the item, then press ENTER.**
Example: Surround (TVS)



Surround (TVS)
Select a surround effect.
Off
Dynamic
Wide
Night
Standard

◆ **Surround (DVD VIDEO only)**
Selects one of the surround modes. For more information, *see “TV Virtual Surround Settings (TVS)” (page 45).*

- Off (default)
- Dynamic
- Wide
- Night
- Standard

◆ **Audio Filter (all discs)**
Selects the digital filter to reduce noise above 22.05 kHz (Fs* is 44.1 kHz), 24 kHz (Fs is 48 kHz), or 48 kHz (Fs is above 96 kHz).

- Sharp (default): Provides a wide frequency range and spatial feeling.
- Slow: Provides smooth and warm sound.

* Sampling frequency of audio source

This function affects output signals from the LINE 1 TV, LINE 3/DECODER, or LINE 2 OUT (AUDIO L/R) jacks.

4 **Press ←/↑/↓/→ to select the option, then press ENTER.**

5 **Press RETURN to turn off the display.**

Note

There may be little effect by changing the Audio Filter depending on the disc or playback environment.

Editing a DVD

This section introduces the basics of DVD editing, and explains edit functions for the recording on a disc.

- *Before Editing. . . . . .page 49*
- *Basic Editing* -RW VR -RW VIDEO +RW -R *. . . . . .page 51*
- *Advanced Editing (Playlist Edit)* -RW VR *. .page 54*

Before Editing

This recorder offers various edit options. Before you edit, read the following to see what is available for your disc.
Note that if you remove the disc while editing, you may lose the edited contents.

Checking the disc type, recording format, and title type

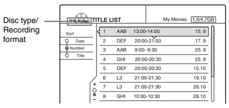
Press TITLE LIST, and check the disc type and recording format indicated at the top of the Title List menu. If the disc is a VR mode disc, check also the title type, Original or Playlist. If you edit an original title instead of a Playlist title by mistake, it is irreversible. You will be unable to recover the erased title, or revert the edited title to the previous status.

Edit options for DVD+RWs/DVD-Rs/DVD-RWs (Video mode)

-RW VIDEO +RW -R

You can perform simple edits. Since Video mode titles are actual recordings on the disc, you cannot undo the edits you have done.

Title List menu for DVD+RWs/DVD-Rs/DVD-RWs (Video mode)



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

Basic edit functions available with Video mode titles:
–Setting protection against erasure *(page 51).*
–Labelling a title *(page 51).*
–Erasing multiple titles *(page 52).*
–Erasing a title *(page 52).*

Notes

- Once the disc is finalized, you cannot edit or record on the disc (except for DVD-RWs in VR mode and DVD+RWs).
- You cannot create a Playlist (see below) on a DVD-RWs (Video mode), DVD+RW, or DVD-Rs.

➡continued

Edit options for DVD-RWs (VR mode)

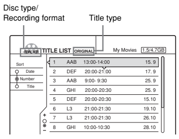
-RW VR

You have two options for a DVD-RW (VR mode): editing either the original recording (called the “Original”), or the playback information created from the Original (called a “Playlist”). Since each is different in nature and offers different merits, read the following and select the one that better suits your needs.

Editing the “Original”

Basic edit functions available with Originals:
–Labelling a title *(page 51).*
–Setting protection against erasure *(page 51).*
–Erasing a title *(page 52).*
–Erasing multiple titles *(page 52).*
–Erasing a section of a title (A-B Erase) *(page 53).*
All edits made to the original title are final. If you plan to retain an unaltered original recording, create and edit a Playlist (see below).

The Title List (Original) menu displays all the original titles on the disc.



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

Note

Original titles provide a source for the created Playlist. If you use an original title for a Playlist, you will be unable to erase the original title.

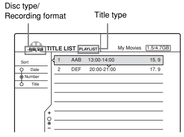
Editing the “Playlist”

A Playlist is a group of Playlist titles created from the original title for editing purposes. When you create a Playlist, only the control information necessary for playback, such as the playback order, is stored on the disc.

Example: You have recorded the final few matches of a football tournament on a DVD-RW (VR mode). You want to create a digest with the goal scenes and other highlights, but you also want to keep the original recording.
In this case, you can collect the scenes of the highlights, and create playback information (a Playlist title). You can even rearrange the scene order within the Playlist title.

The above is only an example. Try using the Playlist’s various edit functions, or use them in conjunction with an Original edit. Devise your own ways of editing with Playlists and Originals.

The Title List (Playlist) menu displays the Playlist titles on the disc.



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9

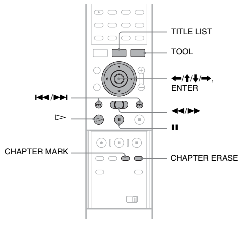
Advanced edit functions available with the Playlist:
–Labelling a title *(page 51).*
–Erasing a title *(page 52).*
–Erasing multiple titles *(page 52).*
–Erasing a section of a title (A-B Erase) *(page 53).*
–Creating a Playlist title from selected titles and scenes *(page 54).*
–Rearranging the title order *(page 57).*
–Dividing a title into multiple titles *(page 57).*
–Combining multiple titles into one title *(page 58).*

Basic Editing

This section explains the basic edit functions. Note that these edits are irreversible to the original status.
If you want to edit a DVD-RW (VR mode) without changing the original recordings, create a Playlist *(page 54).*

Notes

- If “No new data can be added to this disc” appears on the screen, erase any unwanted titles before editing.
- For DVD-Rs/DVD-RWs (Video mode):
  Finish all the editing before finalizing the disc. You cannot edit a finalized disc.
- For original titles in DVD-RWs (VR mode):
  Original titles provide a source for derived Playlist. When you use an original title for a Playlist, you will be unable to erase or edit the original title.

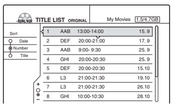


Labelling a title (Title Name)

-RW VR -RW VIDEO +RW -R

You can enter up to 64 characters for a name. The title name will be displayed in the Title List menu.

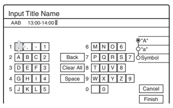
1 **Press TITLE LIST.**
The Title List menu appears. If you are using a DVD-RW (VR mode), press TOOL and select either “Original” or “Playlist” from the Tool menu to change the Title List, if necessary.



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

2 **Press ↑/↓ to select the title, then press ENTER.**
The sub-menu appears.

3 **Press ↑/↓ to select “Title Name,” then press ENTER.**
The display for entering a title name appears.
To enter character, *see page 18.*



Input Title Name
AAB 13:00-14:00

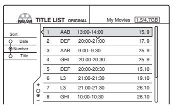
4 **When you finish entering the title name, press ←/↑/↓/→ to select “Finish.”**
A new Title List menu appears with the title of the entered name.

Protecting a title (Protect)

-RW VR -RW VIDEO +RW -R

You can set protection for a title so that the title cannot be erased.

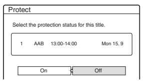
1 **Press TITLE LIST.**
The Title List menu appears. If you are using a DVD-RW (VR mode), press TOOL and select “Original” from the Tool menu.



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

2 **Press ↑/↓ to select the title, then press ENTER.**
The sub-menu appears.

3 **Press ↑/↓ to select “Protect,” then press ENTER.**
The following display appears.



Protect
Select the protection status for this title.
1 AAB 13:00-14:00 Mon 15. 9
On Off

4 **Press ←/→ to select “On,” then press ENTER.**
The protection is set.

➡continued

To cancel the protection

1 **Select the protected title in step 2.**

2 **Press ↑/↓ to select "Protect," then press ENTER.**

3 **Press ←/→ to select "Off," then press ENTER.**

To protect the entire disc

See page 33.

Note

You cannot protect Playlist titles.

Erasing a title (Erase)

-RW VR **-RW VIDEO** **+RW** **-R**

You can erase titles individually using the sub-menu.

◆For DVD-Rs:

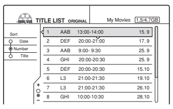
Note that erasing titles on a DVD-R does not increase available disc space.

◆For DVD-RWs (VR mode):

Note that you are unable to erase the original title if there is a Playlist title derived from the original title.

1 Press TITLE LIST.

The Title List menu appears. If you are using a DVD-RW (VR mode), press TOOL and select either "Original" or "Playlist" from the Tool menu to change the Title List, if necessary.



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

2 Press ↑/↓ to select the title you want to erase, then press ENTER.

The sub-menu appears.

3 Press ↑/↓ to select "Erase," then press ENTER.

The title is erased.

◆ When the selected title is protected

The display asks for confirmation.

- To continue the procedure, press → to select "Change."
  The protection display appears. Select "Off" by pressing ←/→, then press ENTER.
- To cancel the procedure, select "Close" by pressing ←/→, then press ENTER.

◆ When the selected title is referred to by a Playlist

Select "Close" as you are unable to delete an original title that is referred to by a Playlist.

If you want to delete the original title, first delete the Playlist title. Then, delete the original title.

Hint

If you are using a DVD-RW (Video mode) or DVD+RW, you can erase a title using the Disc Map (*page 22*).

Erasing multiple titles (Erase Titles)

-RW VR **-RW VIDEO** **+RW** **-R**

You can erase more than two titles at one time using the Tool menu.

◆For DVD-Rs:

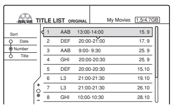
Note that erasing titles on a DVD-R does not increase available disc space.

◆For DVD-RWs (VR mode):

Note that you are unable to erase the original title if there is a Playlist title derived from the original title.

1 Press TITLE LIST.

The Title List menu appears. If you are using a DVD-RW (VR mode), press TOOL and select either "Original" or "Playlist" from the Tool menu to change the Title List, if necessary.



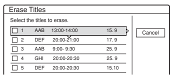
1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

2 Press TOOL.

The Tool menu appears.

3 Press ↑/↓ to select "Erase Titles," then press ENTER.

The display for selecting titles to be erased appears.



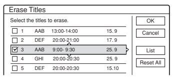
Select the titles to erase.

☐	1	AAB	13:00-14:00	15. 9
☐	2	DEF	20:00-21:00	17. 9
☐	3	AAB	9:00- 9:30	25. 9
☐	4	GHI	20:00-20:30	25. 9
☐	5	DEF	20:00-20:30	15.10

4 Press ↑/↓ to select the title, then press ENTER.

A check mark appears in the check box next to the selected title.

To clear the check mark, press ENTER again.



Select the titles to erase.

☐	1	AAB	13:00-14:00	15. 9
☐	2	DEF	20:00-21:00	17. 9
☑	3	AAB	9:00- 9:30	25. 9
☐	4	GHI	20:00-20:30	25. 9
☐	5	DEF	20:00-20:30	15.10

To list all of the titles to be erased, select "List."

To clear all the check marks, select "Reset All."

5 Repeat step 4 to select all the titles you want to erase.

◆ When the selected title is protected

The display asks for confirmation.

- To continue the procedure, press → to select "Change."
  The protection display appears. Select "Off" by pressing ←/→, then press ENTER.
- To cancel the procedure, select "Close" by pressing ←/→, then press ENTER.

◆ When the selected title is referred to by a Playlist

Select "Close" as you are unable to delete an original title that is referred to by a Playlist.

If you want to delete the original title, first delete the Playlist title. Then, delete the original title.

6 Press ←/→ to select "OK," then press ENTER.

The display asks for confirmation.

To return to the display for selecting titles, select "View All."

7 Press ←/→ to select "OK," then press ENTER.

Hint

If you are using a DVD-RW (Video mode) or DVD+RW, you can erase a title using the Disc Map (*page 22*).

Erasing a section of a title (A-B Erase)

-RW VR

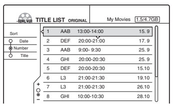
You can erase a section of a title using the sub-menu.

◆For original titles in a DVD-RW (VR mode):

Note that you are unable to erase the original title if there is a Playlist title derived from the original title.

1 Press TITLE LIST.

The Title List menu appears. If you are using a DVD-RW (VR mode), press TOOL and select either "Original" or "Playlist" from the Tool menu to change the Title List, if necessary.



1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

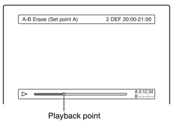
2 Press ↑/↓ to select the title, then press ENTER.

The sub-menu appears.

3 Press ↑/↓ to select "A-B Erase," then press ENTER.

The display for setting point A appears.

The selected title plays in the background. The slider indicates the current playback point.



◆ When the selected title is protected

The display asks for confirmation.

- To continue the procedure, press ←/→ to select "Change."
  The protection display appears. Select "Off" by pressing ←/→, then press ENTER.
- To cancel the procedure, select "Close" by pressing ←/→, then press ENTER.

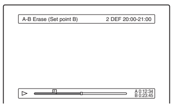
◆ When the selected title is referred to by a Playlist

Select "Close" as you are unable to delete an original title that is referred to by a Playlist.

If you want to delete a section of the original title, first delete the Playlist title. Then, delete the section.

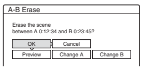
4 While watching the playback picture, set point A using ▷, ❚❚, and ◀◀/▶▶, then press ENTER.

The display for setting point B appears, and the title continues to play in the background.



5 While watching the playback picture, set point B using ▷, ❚❚, and ◀◀/▶▶, then press ENTER.

The display asks for confirmation.



Erase the scene
between A 0:12:34 and B 0:23:45?

To preview, select "Preview."

To reset either point A or B, select "Change A" or "Change B."

6 Press ←/↑/↓/→ to select "OK," then press ENTER.

The scene is erased, and the display asks whether to erase another scene.

To continue, select "Yes" and repeat the steps above.

→continued

7 To exit, press ←/→ to select "No," then press ENTER.

The display returns to the Title List menu.

Notes

- Images or sound may be momentarily interrupted at the point where you erase a section of a title.
- Sections shorter than five seconds may not be erased.

Creating chapters manually

-RW VR

You can manually insert a chapter mark at any point you like.

Press CHAPTER MARK during playback at the point where you want to divide the title into chapters.

Each time you press the button, "Marking…" appears on the screen and the scene to the left and right of the mark becomes a chapter.

To erase chapter marks

You can combine two chapters by erasing a chapter mark during playback.

1 **Press ⏮ or ⏭ to search for a chapter number.**

2 **Press CHAPTER ERASE while displaying the chapter you want to erase.**

The current playing chapter combines with the previous chapter.

Notes

- Playback may momentarily stop when inserting a chapter mark.
- A message will appear when no more chapter marks can be added. In this case, you may not be able to record or edit the disc.

Advanced Editing (Playlist Edit)

This section explains how to create a Playlist, and then covers available edit functions for the created Playlist.

Playlist titles can be created from scenes that are selected original titles or other Playlist titles.

Since edits to the Playlist does not affect the original title, you can redo editing as many times as you like.

To create a Playlist title, you will do the following.

1. Select a title or titles for editing

↓

2. "Capture" multiple scenes from the selected title(s)

↓

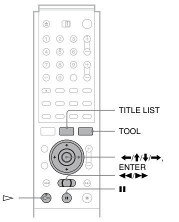
3. Confirm the scenes on the Scene List

↓

4. If necessary, edit the scenes on the Scene List

↓

5. Connect scenes to create a "Playlist" title



Creating a Playlist title from other titles

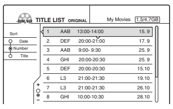
-RW VR

Collect your favourite scenes from original titles or other Playlist titles to create a new Playlist title. You can rearrange the order of the scenes or edit the scenes as well.

1 Press TITLE LIST.

The Title List (Original) menu or the Title List (Playlist) menu appears.

Example: The Title List (Original) menu.



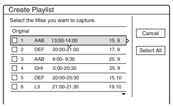
1	AAB	13:00-14:00	15. 9
2	DEF	20:00-21:00	17. 9
3	AAB	9:00- 9:30	25. 9
4	GHI	20:00-20:30	25. 9
5	DEF	20:00-20:30	15.10
6	L3	21:00-21:30	19.10
7	L3	21:00-21:30	26.10
8	GHI	10:00-10:30	28.10

2 Press TOOL.

The Tool menu appears.

3 Press ↑/↓ to select "Create Playlist," then press ENTER.

The display for selecting titles appears.



Select the titles you want to capture.

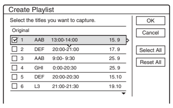
Original

☐	1	AAB	13:00-14:00	15. 9
☐	2	DEF	20:00-21:00	17. 9
☐	3	AAB	9:00- 9:30	25. 9
☐	4	GHI	0:00-20:30	25. 9
☐	5	DEF	20:00-20:30	15.10
☐	6	L3	21:00-21:30	19.10

4 Press ↑/↓ to select the title you want to include in the Playlist title, then press ENTER.

A check mark appears in the check box next to the selected title.

To clear the check mark, press ENTER again.



Select the titles you want to capture.

Original

☑	1	AAB	13:00-14:00	15. 9
☐	2	DEF	20:00-21:00	17. 9
☐	3	AAB	9:00- 9:30	25. 9
☐	4	GHI	0:00-20:30	25. 9
☐	5	DEF	20:00-20:30	15.10
☐	6	L3	21:00-21:30	19.10

To select all of the titles, select "Select All."

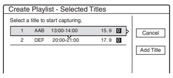
5 Repeat step 4 when adding more titles.

To go to the next page, press ↓.

To clear all the check marks, select "Reset All."

6 Press ←/→ to select "OK," then press ENTER.

The list of selected titles appears.



Select a title to start capturing.

1	AAB	13:00-14:00	15. 9	0
2	DEF	20:00-21:00	17. 9	0

To add another title, select "Add Title."

7 Press ↑/↓ to select one of the titles, then press ENTER.

The sub-menu appears.

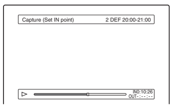
◆ To add the entire title as one scene to the Playlist title

Select "Capture All" and go to step 14.

8 Press ↑/↓ to select "Capture," then press ENTER.

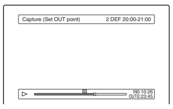
The display for setting the start point (IN) appears.

The selected title starts to play in the background.



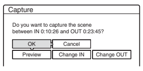
9 While watching the playback picture, select the start of the scene using ▷, ❚❚, and ◀◀/▶▶, then press ENTER.

The display for setting the end point (OUT) appears, and the title continues to play in the background.



10 While watching the playback picture, select the end point of the scene using ▷, ❚❚, and ◀◀/▶▶, then press ENTER.

The display asks for confirmation.



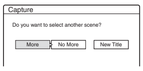
Do you want to capture the scene
between IN 0:10:26 and OUT 0:23:45?

To view the selected scene, select "Preview."

To reset either the IN or OUT point, select "Change IN" or "Change OUT."

11 Press ←/→ to select "OK," then press ENTER.

The selected portion is captured as a scene, and the display asks whether to continue scene capture.



Do you want to select another scene?

→continued

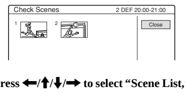
12 Press ⬅/➡ to select an option on the screen, then press ENTER.
To capture a scene from the same title, select “More,” and repeat the steps above.
To capture a scene from another title, select “New Title,” and repeat the steps above.

13 To end scene capture, press ⬅/➡ to select “No More” and press ENTER.
The display returns to the list of selected titles.

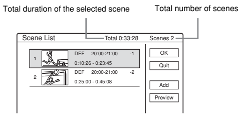
◆ **To check the captured scenes in a single title**

① **Press ⬆/⬇ to select a title from the list of selected titles, then press ENTER.**
The sub-menu appears.

② **Press ⬆/⬇ to select “Check Scenes,” then press ENTER.**
The thumbnail pictures of the captured scenes within the title appear.


Check Scenes
2 DEF 20:00-21:00
1
2
Close

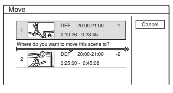
14 Press ⬅/⬆/⬇/➡ to select “Scene List,” then press ENTER.
The Scene List menu appears with all of the selected scenes.


Total duration of the selected scene
Total number of scenes
Scene List
Total 0:33:28
Scenes 2
1 DEF 20:00-21:00 -1
0:10:26 - 0:23:45
2 DEF 20:00-21:00 -2
0:25:00 - 0:45:08
OK
Quit
Add
Preview

◆ **To change the scene order (Move)**

① **Press ⬆/⬇ to select the scene you want to move, then press ENTER.**
The sub-menu appears.

② **Press ⬆/⬇ to select “Move,” then press ENTER.**
The display for selecting the insertion point appears.


Move
1 DEF 20:00-21:00 -1
0:10:26 - 0:23:45
Where do you want to move this scene to?
2 DEF 20:00-21:00 -2
0:25:00 - 0:45:08
Cancel

③ **Press ⬆/⬇ to select the insertion point, then press ENTER.**
The scene moves to its new position, and the display returns to the Scene List menu.

◆ **To erase the scene (Erase)**

① **Press ⬆/⬇ to select the scene you want to erase, then press ENTER.**
The sub-menu appears.

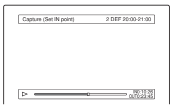
② **Press ⬆/⬇ to select “Erase,” then press ENTER.**

③ **When the display asks for confirmation, press ⬅/➡ to select “OK,” then press ENTER.**

◆ **To change the scene contents (Change IN/ Change OUT)**

① **Press ⬆/⬇ to select the scene you want to change, then press ENTER.**
The sub-menu appears.

② **Press ⬆/⬇ to select “Change IN,” then press ENTER.**
The display for setting the IN point appears.


Capture (Set IN point)
2 DEF 20:00-21:00
IN0:10:26
OUT0:23:45

③ **Repeat steps 9 to 13.**
To reset the OUT point, select “Change OUT,” then repeat steps 10 to 13.
The display returns to the Scene List menu.

◆ **To add another scene**

Press ⬅/⬆/⬇/➡ to select “Add,” then press ENTER. Repeat steps above.

◆ **To preview the entire Playlist title**

Press ⬅/⬆/⬇/➡ to select “Preview,” then press ENTER. The captured scenes start to play in the listed order. When the playback is finished, the display returns to the Scene List menu.

15 Press ⬅/➡ to select “OK,” then press ENTER.
The scenes are connected to create a new Playlist title, and the display for entering the title name appears.

◆ **To enter a new name**

Select “Enter” and follow the explanations on *page 18.*

◆ **To use the default name**

Press ⬅/➡ to select “OK,” then press ENTER. A new Title List menu appears with the title of the entered name.

Hint

When a Playlist title is created, the “IN” point and “OUT” point will become chapter marks, and each scene will become a chapter.

Note

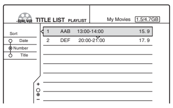
The picture may pause when the edited scene is played.

Moving a Playlist title (Move)

-RW VR

You can change the Playlist title order within the Title List (Playlist).

1 Press TITLE LIST.
The Title List menu appears.
If the Title List (Original) menu appears, press TOOL, and select “Playlist” from the Tool menu.


-RW VR
TITLE LIST PLAYLIST
My Movies
1.5/4.7GB
Sort
Date
Number
Title
1 AAB 13:00-14:00 15. 9
2 DEF 20:00-21:00 17. 9

2 Press ⬅ to select the sort buttons.

3 Press ⬆/⬇ to select “Number,” then press ENTER.

4 Press ⬆/⬇ to select the title you want to move, then press ENTER.
The sub-menu appears.

5 Press ⬆/⬇ to select “Move,” then press ENTER.
The display for moving titles appears.

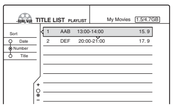
6 Press ⬆/⬇ to select the new location, then press ENTER.
The title moves to its new location, and the display returns to the new Title List (Playlist) menu.

Dividing a Playlist title (Divide)

-RW VR

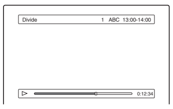
You can divide a Playlist title into two Playlist titles. For example, if a Playlist title contains two football matches, you can divide the title where the first match ends.

1 Press TITLE LIST.
The Title List menu appears.
If the Title List (Original) menu appears, press TOOL, and select “Playlist” from the Tool menu.


-RW VR
TITLE LIST PLAYLIST
My Movies
1.5/4.7GB
Sort
Date
Number
Title
1 AAB 13:00-14:00 15. 9
2 DEF 20:00-21:00 17. 9

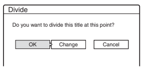
2 Press ⬆/⬇ to select the title, then press ENTER.
The sub-menu appears.

3 Press ⬆/⬇ to select “Divide” then press ENTER.
The display setting the dividing point appears.
The selected title starts to play in the background.


Divide
1 ABC 13:00-14:00
0:12:34

4 While watching the picture on the screen, move the playback point using ▷, ❚❚, and ◀◀/▶▶.

5 Press ENTER at the point where you want to divide the title.
The display asks for confirmation.


Divide
Do you want to divide this title at this point?
OK
Change
Cancel

To change the dividing point, select “Change.”

6 Press ⬅/➡ to select “OK,” then press ENTER.
The display asks if you want to enter a new name.

◆ **To enter a new name**

Select “Yes” and follow the explanations on *page 18*.

◆ **To use the same name as before**

Select “No.”

7 Press ⬅/➡ to select “Yes” or “No,” then press ENTER.
The title is divided and the Title List menu appears with the two divided titles.

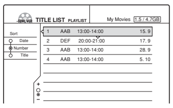
➡continued

Combining multiple Playlist titles (Combine)

-RW VR

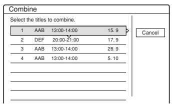
You can add new contents to an existing Playlist title by combining the title with other Playlist titles.

1 Press TITLE LIST.
The Title List menu appears.
If the Title List (Original) menu appears, press TOOL, and select “Playlist” from the Tool menu.

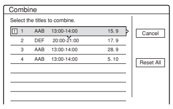

-RW VR
TITLE LIST PLAYLIST
My Movies
1.5 / 4.7GB
Sort
Date
Number
Title
1 AAB 13:00-14:00 15. 9
2 DEF 20:00-21:00 17. 9
3 AAB 13:00-14:00 28. 9
4 AAB 13:00-14:00 5. 10

2 Press TOOL.
The Tool menu appears.

3 Press ⬆/⬇ to select “Combine,” then press ENTER.
The display for selecting titles appears.


Combine
Select the titles to combine.
1 AAB 13:00-14:00 15. 9
2 DEF 20:00-21:00 17. 9
3 AAB 13:00-14:00 28. 9
4 AAB 13:00-14:00 5. 10
Cancel

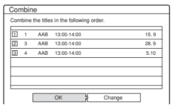
4 Press ⬆/⬇ to select the title, then press ENTER.
A number appears next to the selected title, indicating the order in which you selected the title.


Combine
Select the titles to combine.
1 1 AAB 13:00-14:00 15. 9
2 DEF 20:00-21:00 17. 9
3 AAB 13:00-14:00 28. 9
4 AAB 13:00-14:00 5. 10
Cancel
Reset All

To cancel the selection, move the cursor to the selected title by pressing ⬆/⬇, then press ENTER again.

5 Repeat step 4 to select all the titles you want to combine.
To list the titles to be combined, select “List.”
To cancel all of the selections, select “Reset All.”

6 Press ➡ to select “OK,” then press ENTER.
The display asks for confirmation.


Combine
Combine the titles in the following order.
1 1 AAB 13:00-14:00 15. 9
2 3 AAB 13:00-14:00 28. 9
3 4 AAB 13:00-14:00 5.10
OK
Change

To change the selection, select “Change.”

7 Press ⬅/➡ to select “OK,” then press ENTER.
The display for selecting a title name from among the selected titles appears.
To enter a new name, select “Enter Text,” and follow the explanations on *page 18*.

8 Press ⬆/⬇ to select a name, then press ENTER.
The titles are combined, and the display returns to the Title List menu.

Additional Playlist edit functions

-RW VR

You can also do the following edits for Playlists.
– Label a Playlist title (*page 51).*
– Erase a Playlist title (*page 52).*
– Erase multiple Playlist titles (*page 52).*
– Erase a section of a Playlist title (A-B Erase) (*page 53).*
– Create chapters in a title (*page 54).*

To perform these edits, press TITLE LIST * and then follow the same steps for these functions explained in *“Basic Editing” (page 51).*

* If the Title List (Original) menu appears, press TOOL and select “Playlist” from the Tool menu.

Note

Erasing Playlist titles will not free up disc space.

Connecting a Digital Video Camera or Other Equipment

You can record from connected equipment, such as a digital video camera.

- *Before Recording/Editing . . . . .page 59*
- *Recording an Entire DV/Digital8 Format Tape (ONE TOUCH DUB)* -RW VR -RWVIDEO +RW -R *. . . . . .page 61*
- *Program Edit* -RW VR -RWVIDEO +RW -R *. . . . . .page 62*
- *Advanced Program Edit* -RW VR *. . . . . .page 64*
- *Re-editing the programs in the DV Edit List* -RW VR *. . . . . .page 67*
- *Creating a Copy of the Edited Contents (Copy Dubbing)* -RW VR -RWVIDEO +RW -R *. . . . . .page 69*
- *Recording From Equipment Connected to the LINE IN Jacks* -RW VR -RWVIDEO +RW -R *. . . . . .page 71*

Before Recording/Editing

The recorder has a DV IN jack that inputs digital signals, and LINE jacks that input/output analogue signals.
The DV IN jack on this recorder conforms to the i.LINK standard. You can connect other equipment that has an i.LINK (DV) jack although it is for input only. If you want to have the recorder to output signals, use the LINE jacks. For more information, *see “About i.LINK” (page 90).*
If you plan to do additional editing on a disc after the initial dub, use the DV IN jack and record on a DVD-RW in VR mode.

◆**When recording from the DV IN jack**

See “Preparing for recording using the DV IN jack” below.

◆**When recording from the LINE IN jacks**

See “Recording From Equipment Connected to the LINE IN Jacks” (page 71).

Preparing for recording using the DV IN jack

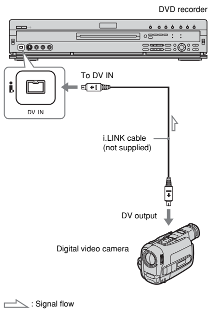
You can connect a digital video camera to the DV IN jack on the recorder to record or edit from a DV/Digital8 format tape. Operation is smooth because the recorder will fast forward and rewind the tape for you – you do not need to operate your digital video camera. Do the following to start using the DV Edit functions of this recorder.
See also the instruction manual supplied with the digital video camera before connecting.

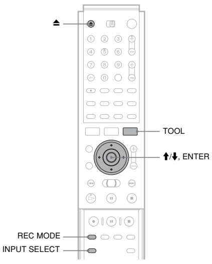
Notes

- Only DVC-SD format signals can be input to the DV IN jack on this recorder. Do not connect a MICRO MV format digital video camera even if it has an i.LINK jack.
- Turn off the PDC/VPS channel scan function when dubbing or editing (*page 26).*

➡continued

Hookups





1 **Turn on your TV and this recorder, then set the TV to the connected channel (“VIDEO” etc.).**

2 **Press ⏏, and place a recordable disc on the tray.**
If you plan to do additional editing, use a DVD-RW.

3 **Press ⏏ to close the disc tray.**
Wait until “LOAD” disappears from the front panel display.
If you inserted a blank DVD-RW in step 2, format the disc in VR mode.

4 **Insert the source DV/Digital8 format tape into the digital video camera.**
For the recorder to record or edit, the digital video camera must be set to video playback mode.

5 **Press INPUT SELECT repeatedly to select “DV.”**
The front panel display changes as follows.

Programme position → L1 → L2 → L3 → L4 → DV

6 **Press REC MODE repeatedly to select the recording mode.**
The recording mode changes as follows:

HQ → HSP → SP → LP → EP → SLP

7 **Select the audio input for the digital video camera using the Tool menu.**

① **Press TOOL.**

② **Press ↑/↓ to select “DV Audio Input,” then press ENTER.**

③ **Press ↑/↓ to select the item, then press ENTER.**
- Stereo1 (default)
- MIX (both stereo 1 and stereo 2)
- Stereo2

You are ready to start recording.

Hint
You can adjust the settings for the recording picture before recording. *See “Adjusting the Recording Picture Quality and Size” (page 30).*

Notes
- You cannot connect more than two pieces of digital video equipment to the recorder.
- Depending on the digital video equipment, you may not be able to control the equipment.
- You cannot control the recorder using another device or another recorder of the same model.
- You cannot record date, time or the contents of the cassette memory onto the disc.
- If you record from a DV/Digital8 format tape with a sound track that is recorded in multiple sampling frequencies (48 kHz, 44.1 kHz, or 32 kHz), no sound will be output when playing back the switched point on the disc.
- In order to use this recorder’s Auto Chaptering feature, be sure to correctly set the clock on your digital video camera before shooting.
- The recorded picture may be momentarily affected if the picture size of the source image changes, or if there is nothing recorded on the tape.

The following functions are available

◆One Touch Dub ***(page 61)***
Records the entire contents of a DV/Digital8 format tape to a disc of your choice with a single touch of the ONE TOUCH DUB button.

◆Program Edit ***(page 62)***
Allows you to select scenes from a DV/Digital8 format tape, and then automatically records the selected scenes to a disc of your choice.

◆Advanced Program Edit ***(page 64)***
The recorder copies the entire contents of a DV/Digital8 format tape to a DVD-RW in VR mode, whereupon the contents are automatically divided into chapters. The chapters are displayed as scenes in a scene list where you can instantly delete or rearrange the scenes at will. After you have selected the scenes, you can either create a Playlist of the selected scenes in the DVD-RW (VR mode), or you can change discs and record the scenes to another disc of your choice.

◆Re-editing the DV Edit List (DVD-RW in VR mode only) (*page 67)*
Each time you make a One Touch Dub or Advanced Program Edit using a DVD-RW (VR mode), the start and stop points of the selected scenes (called a “program”) are saved in a DV Edit List. You can make additional changes to this “program.”

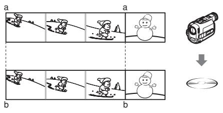
◆Copy Dubbing ***(page 69)***
Allows you to make copies of the programs contained in the DV Edit List to a disc of your choice.

Recording an Entire DV/Digital8 Format Tape (ONE TOUCH DUB)

-RW VR **-RW VIDEO** **+RW** **-R**

You can record the entire contents of a DV/Digital8 format tape onto a disc with a single press of the ONE TOUCH DUB button. The recorder controls the digital video camera for the whole process, and completes the recording.

Example for all disc types



When using a DVD-RW (VR mode), chapter marks [b] are marked where the recordings stop and start on the tape [a].
For other discs, the recorder marks chapters either in 6 or 15 minute intervals depending on the setting in “Auto Chapter” in Features Setup (*page 79).*

Follow steps 1 to 7 of “*Preparing for recording using the DV IN jack” (page 59)*, then press ONE TOUCH DUB on the front panel of the recorder.
The recorder rewinds the tape and then starts recording the tape contents.
When the recording is finished, the recorder rewinds the tape in the digital video camera, and turns off.

To stop during recording

Press ■ REC STOP.

Hints
- The date and time of the recording made with your digital video camera is assigned as the program name in the DV Edit List (*page 67)* (example: DV11.10.2002 13:30 – 12.10.2002 16:46).
- If you set “Finalize Disc” to “Auto” in Features Setup (page 81), the recorded disc will automatically be finalized after recording is finished.

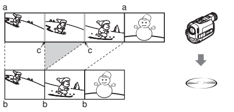
Notes
- The recorder does not start One Touch Dub when you set “Add to Edit List” to “On” (default) in Features Setup (*page 81)* and there are already twenty programs on the recorder. In this case, the recorder beeps and the front panel display flashes. Delete unnecessary programs from the DV Edit List menu (page 67) and repeat the steps above.
- When a blank space on the tape continues for more than five minutes, One Touch Dub ends automatically.
- This function may not work with certain digital video cameras. In this case, follow the instructions of “Recording From Equipment Connected to the LINE IN Jacks” (page 71).
- In order for a One Touch Dub recording to be added to the DV Edit List, “Add to Edit List” in Features Setup must be set to “On” (default) *(page 81).*

Program Edit

-RW VR **-RW VIDEO** **+RW** **-R**

You can select scenes from a DV/Digital8 format tape, and then automatically record selected scenes to a disc of your choice.

Example for DVD-RWs (VR mode)



When using a DVD-RW (VR mode), chapter marks [b] are marked where the recordings stop and start on the tape [a]. Chapter marks are also inserted at the IN and OUT points of the selected scenes [c].
For other discs, the recorder marks chapters either in 6 or 15 minute intervals depending on the setting in “Auto Chapter” in Features Setup (*page 79).*

To use this function, you will do the following:

Connect your digital video camera and prepare for recording

↓

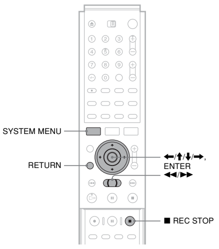
Select and edit the scenes you want to dub

Using the recorder’s remote control, you will fast forward or rewind the tape to select the scenes. At this point, the selected scenes are not copied to the disc. The recorder only remembers the IN and OUT points of the scenes that you selected for dubbing. You can also reset, erase, or change the order of the scenes.

↓

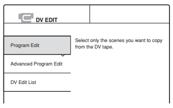
Dub the selected scenes to a disc

After you have selected the scenes, the recorder will fast forward and rewind the tape automatically and record the scenes to a disc of your choice.



1 **Follow steps 1 to 7 of “*Preparing for recording using the DV IN jack” (page 59)*, then press SYSTEM MENU.**

2 **Press ↑/↓ to select “DV EDIT,” then press ENTER.**
The DV Edit menu appears.



DV EDIT

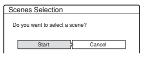
Program Edit

Select only the scenes you want to copy from the DV tape.

Advanced Program Edit

DV Edit List

3 **Press ↑/↓ to select “Program Edit,” then press ENTER.**
The display asks whether to start selecting scenes.



Scenes Selection

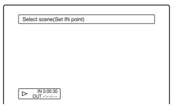
Do you want to select a scene?

Start Cancel

◆ If you have previously saved a program
The display asks whether to edit an existing program or to create a new program. To resume editing the existing program, select “Saved Data.”

4 **Press ←/→ to select “Start,” then press ENTER.**
The display for setting the IN point (start of the scene on the tape) appears.

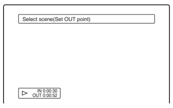
5 **Press ▷ to start playback of the tape in your digital video camera.**
The scene starts to play in the background.



Select scene(Set IN point)

IN 0:00:30
OUT -:--:--

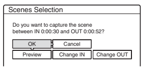
6 **While watching the playback picture, search for the IN point by pressing ◀◀ or ▶▶, then press ENTER.**
The display for setting the OUT point (end of the scene on the tape) appears. The scene starts to play in the background from the IN point.



Select scene(Set OUT point)

IN 0:00:30
OUT 0:00:52

7 **While watching the playback picture, search for the OUT point by pressing ◀◀ or ▶▶, then press ENTER.**
The display asks whether to add the selected scene to the Scene List menu.



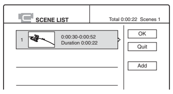
Scenes Selection

Do you want to capture the scene between IN 0:00:30 and OUT 0:00:52?

OK Cancel
Preview Change IN Change OUT

To preview the scene, select “Preview.”
To reset either the IN or OUT point, select “Change IN” or “Change OUT.” Repeat from step 5.

8 **Press ←/↑/↓/→ to select “OK,” then press ENTER.**
A new Scene List menu appears with the selected scene.

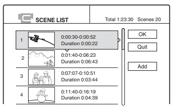


SCENE LIST Total 0:00:22 Scenes 1

1 0:00:30-0:00:52 Duration 0:00:22

OK
Quit
Add

9 **Press ←/↑/↓/→ to select “Add” and press ENTER. Then repeat steps 5 to 9 to select all the scenes you want to include.**
You can add up to 50 scenes to a title.



SCENE LIST Total 1:23:30 Scenes 20

1	0:00:30-0:00:52 Duration 0:00:22
2	0:01:40-0:06:23 Duration 0:06:43
3	0:07:07-0:10:51 Duration 0:03:44
4	0:11:40-0:16:19 Duration 0:04:39

OK
Quit
Add

To edit the Scene List, select a scene by pressing ←/↑/↓/→, and then press ENTER. When the sub-menu appears, select an edit option you want to apply to the scene.

◆ To erase the scene

① **Press ↑/↓ to select “Erase,” then press ENTER.**

② **When the display asks for confirmation, press ←/→ to select “OK,” then press ENTER.**

◆ To move the scene

① **Press ↑/↓ to select “Move,” then press ENTER.**
The display for selecting the scene insertion point appears.

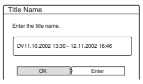
② **Press ↑/↓ to select the point, then press ENTER.**
The scene moves to the selected location.

◆ To reset the start or end of the scene
Press ↑/↓ to select “Change IN” or “Change OUT,” then press ENTER.

◆ To preview the scene
Press ↑/↓ to select “Preview,” then press ENTER.

To cancel, press ←/↑/↓/→ to select “Quit,” then press ENTER.

10 **When you finish editing the Scene List, press ←/↑/↓/→ to select “OK,” then press ENTER.**
The display for entering a title name appears.



Title Name

Enter the title name.

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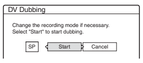
OK Enter

To enter a new name, select “Enter,” and follow the explanations on *page 18.*

11 **To use the default name, press ←/→ to select “OK,” then press ENTER.**
The default title name is fixed, and the display asks whether to start recording. If you want to change the recording mode, press ←/→ to move the cursor, then press ↑/↓ to select the mode.



DV Dubbing

Change the recording mode if necessary.
Select "Start" to start dubbing.

SP Start Cancel

→continued

12 Press ←/→ to select “Start,” then press ENTER.
The recorder starts recording the tape contents as programmed.
To stop during recording, press ■ REC STOP.

13 When the recording is finished, press ENTER to select “Close.”
The display returns to the DV Edit menu.

14 Press RETURN repeatedly to turn off the display.

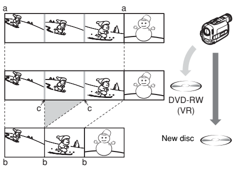
Notes

- The disc may not be recorded as programmed if the tape’s time code is not sequential or there are blanks between the recordings on the tape. In this case, follow the instructions of *“Recording From Equipment Connected to the LINE IN Jacks” (page 71).*
- Start and end point of a program may be different from what you have set if the source DV/Digital8 format tape is in any of the following conditions:
  – Recording mode was changed during the recording.
  – There is a blank space in the recorded portion.
- You cannot set a scene shorter than one second.
- This function may not work with certain digital video cameras. In this case, follow the instructions of *“Recording From Equipment Connected to the LINE IN Jacks” (page 71).*

Advanced Program Edit

-RW VR

You can quickly edit a DV/Digital8 format tape by first copying the entire contents of the tape to a DVD-RW (VR mode) and then select the scenes you want from the disc. After you select the scenes, you can change discs and record the scenes to another disc of your choice. If necessary, you can also create a Playlist title of the selected scenes in the DVD-RW (VR mode).



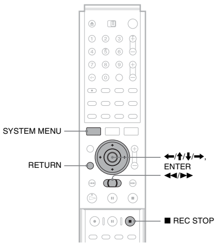
When dubbing to a DVD-RW (VR mode), chapter marks [b] are marked where the recordings stop and start on the tape [a]. Chapter marks are also inserted at the IN and OUT points of the selected scenes [c].

To use this function, you will do the following:

Connect your digital video camera and prepare for recording
↓
Record the entire contents of the DV/Digital8 tape to a DVD-RW (VR mode)
↓
Select and edit the scenes you want to dub

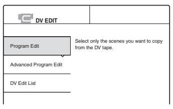
Taking advantage of the disc’s quick accessibility, you will select the scenes you want from the inserted DVD-RW. You do not have to fast forward or rewind the tape as explained in *“Program Edit” (page 62).* You can also reset, erase, or change the order of the scenes.
↓
Dub the scenes to another disc

After you have selected the scenes, you can dub the selected scenes to another disc of your choice. Or, you can create a Playlist of the selected scenes.



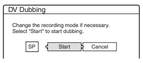
1 Follow steps 1 to 7 of “*Preparing for recording using the DV IN jack” (page 59)*, then press SYSTEM MENU.
Insert a blank DVD-RW into the recorder and format it in VR mode.

2 Press ↑/↓ to select “DV EDIT,” then press ENTER.
The DV Edit menu appears.



Select only the scenes you want to copy from the DV tape.

3 Press ↑/↓ to select “Advanced Program Edit,” then press ENTER.
The display asks whether to start recording.

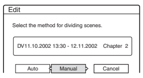


Change the recording mode if necessary.
Select "Start" to start dubbing.

If you want to change the recording mode, press ←/→ to move the cursor, then press ↑/↓ to select the mode.

4 Press ←/→ to select “Start,” then press ENTER.
The recorder starts recording the tape contents.
To stop during recording, press ■ REC STOP.

When recording is finished, the display asks if you want to create scenes within the generated program automatically or manually, or quit editing.



Select the method for dividing scenes.
DV11.10.2002 13:30 - 12.11.2002 Chapter 2

◆ **To create scenes automatically**

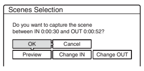
Press ←/→ to select “Auto,” then press ENTER. The recorder divides the generated program into scenes, and the Scene List menu appears.

◆ **To create scenes manually**

① **Press ←/→ to select “Manual,” then press ENTER.**
The display for setting the IN point appears. The scene starts to play in the background.

② **While watching the playback picture, press ◀◀ or ▶▶ to search for the IN point, then press ENTER.**
The IN point is set, and the display for setting the OUT point (end of the scene) appears.

③ **While watching the playback picture, press ◀◀ or ▶▶ to search for the OUT point, then press ENTER.**
The OUT point is set, and the display asks whether to add the selected scene to the Scene List menu.



Do you want to capture the scene between IN 0:00:30 and OUT 0:00:52?

- To preview the scene, select “Preview.”
- To reset either the IN or OUT point, select “Change IN” or “Change OUT.”

④ **Press ←/↑/↓/→ to select “OK,” then press ENTER.**
A new Scene List menu appears with the selected scene.

⑤ **Press ←/↑/↓/→ to select “Add,” then press ENTER.**
The display for selecting the scene insertion point appears.

⑥ **Press ↑/↓ to select the insertion point in the Scene List, then press ENTER.**
The display for setting the IN point (start of the scene) appears.

⑦ **Repeat steps ② to ⑥ to create all the scenes you want to add to the Scene List.**
You can add up to 50 scenes.

◆ **To quit editing**

Press ←/→ to select “Cancel,” then press ENTER.

5 To edit the Scene List, press ←/↑/↓/→ to select a scene in the Scene List menu and press ENTER.
When the sub-menu appears, select an edit option you want to apply to the scene.

→continued

◆ **To erase the scene**

① **Press ↑/↓ to select “Erase,” then press ENTER.**

② **When the display asks for confirmation, press ←/→ to select “OK,” then press ENTER.**

◆ **To move the scene**

① **Press ↑/↓ to select “Move,” then press ENTER.**
The display for selecting the scene insertion point appears.

② **Press ↑/↓ to select the point, then press ENTER.**
The scene moves to the selected location.

◆ **To reset the start or end of the scene**

Press ↑/↓ to select “Change IN” or “Change OUT,” then press ENTER.

◆ **To preview the scene**

Press ↑/↓ to select “Preview,” then press ENTER.

To cancel, press ←/↑/↓/→ to select “Quit,” then press ENTER.

6 When you finish creating the Scene List, press ←/↑/↓/→ to select “OK,” then press ENTER.
The edited program is saved, and the display asks if you want to create a Playlist title.
If you select “No,” the display returns to the DV Edit menu. Go to step 9.

7 Press ←/→ to select “Yes,” then press ENTER.
The display for entering a Playlist title name appears. To enter a new name, select “Enter,” and follow the explanations on *page 18.*

8 To use the default name, press ←/→ to select “OK,” then press ENTER.
A Playlist title of the default title name is created on the same disc, and the display returns to the DV Edit menu.
You now have a disc containing both the entire contents of the DV/Digital8 format tape and a Playlist of the selected scenes.
To edit the Playlist title, *see “Advanced Editing (Playlist Edit)”* (*page 54).*

9 Dub the selected scenes to a disc.
Make copies of the selected scenes to a disc of your choice. *Go to step 3 of “Creating a Copy of the Edited Contents (Copy Dubbing)” (page 69).*

Notes

- The disc may not be recorded as programmed if the tape’s time code is not sequential or there are blanks between the recordings on the tape. In this case, follow the instructions of “*Recording From Equipment Connected to the LINE IN Jacks*” (*page 71).*
- You cannot set a scene to be shorter than one second.
- Start and end point of a program may be different from what you have set if the source DV/Digital8 format tape is in any of the following conditions:
  – Recording mode was changed during the recording.
  – There is a blank space in the recorded portion.
- This function may not work with certain digital video cameras. In this case, follow the instructions of *“Recording From Equipment Connected to the LINE IN Jacks” (page 71).*

Re-editing the programs in the DV Edit List

-RW VR

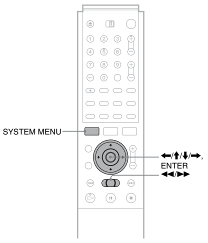
Each time you make a One Touch Dub or Advanced Program Edit using a DVD-RW (VR mode), the start and stop points of the selected scenes (called a “program”) are saved in a DV Edit List. You can make additional changes to this “program” by resetting, erasing, or changing the order of the scenes. You can then dub the re-edited program to a disc of your choice.

To use this function, you will do the following:

Connect your digital video camera and prepare for editing

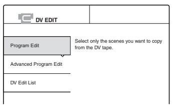
Be sure to use the original DV/Digital8 format tape and the DVD-RW (VR mode) that corresponds to the program in the DV Edit List.
↓
Select a program from the DV Edit List
↓
Edit the program in the DV Edit List
↓
Dub the selected scenes to a disc

The recorder will fast forward and rewind the tape automatically and record the scenes to a disc of your choice.



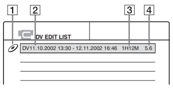
1 Follow steps 1 to 4 of “*Preparing for recording using the DV IN jack” (page 59)*, then press SYSTEM MENU.
Be sure to use the original DV/Digital8 format tape and the DVD-RW (VR mode) that corresponds to the program in the DV Edit List.

2 Press ↑/↓ to select “DV EDIT,” then press ENTER.
The DV Edit menu appears.



Select only the scenes you want to copy from the DV tape.

3 Press ↑/↓ to select “DV Edit List,” then press ENTER.
The DV Edit List menu appears.
A disc mark will appear next to the program that corresponds to the inserted disc. You can only edit the programs that display a disc mark.



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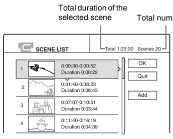
1 **Disc mark**
2 **Program name**
3 **Total playing time**
4 **Date of editing or recording**

4 Press ↑/↓ to select the program you want to edit, then press ENTER.
The sub-menu appears.

5 Press ↑/↓ to select “Edit,” then press ENTER.
The Scene List menu appears with all the scenes the program contains.



1	0:00:30-0:00:52 Duration 0:00:22
2	0:01:40-0:06:23 Duration 0:06:43
3	0:07:07-0:10:51 Duration 0:03:44
4	0:11:40-0:16:19 Duration 0:04:39

◆ **To add a new scene to the Scene List**

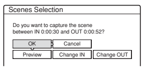
① **Press ←/↑/↓/→ to select “Add,” then press ENTER.**
The display for selecting the scene insertion point appears.

② **Press ↑/↓ to select the insertion point in the Scene List, then press ENTER.**
The display for setting the IN point (start of the scene) appears.

→continued

③ **While watching the playback picture, press ◀◀ or ▶▶ to search for the IN point, then press ENTER.**
The IN point is set, and the display for setting the OUT point (end of the scene) appears.

④ **While watching the playback picture, press ◀◀ or ▶▶ to search for the OUT point, then press ENTER.**
The OUT point is set, and the display asks whether to add the selected scene to the Scene List menu.



Scenes Selection

Do you want to capture the scene
between IN 0:00:30 and OUT 0:00:52?

- To preview the scene, select “Preview.”
- To reset either the IN or OUT point, select “Change IN” or “Change OUT.”

⑤ **Press ←/↑/↓/→ to select “OK,” then press ENTER.**
A new Scene List menu appears with the selected scene. To add another scene, repeat from step ①.

◆ **If you select a program that contains no scenes**

The display asks whether to generate scenes within the selected program.
To generate scenes automatically, press ←/→ to select “Auto,” then press ENTER.
Scenes are generated and a new Scene List menu appears.
To capture scenes manually, select “Manual,” then press ENTER. The display for adding a scene appears. Follow steps ③ to ⑤ above.

6 **Press ↑/↓ to select the scene you want to edit, then press ENTER.**
The sub-menu appears.

7 **Press ↑/↓ to select the edit option you want to apply to the scene, then press ENTER.**

◆ **To erase the scene**

① **Press ↑/↓ to select “Erase,” then press ENTER.**

② **When the display asks for confirmation, press ←/→ to select “OK,” then press ENTER.**

◆ **To move the scene**

① **Press ↑/↓ to select “Move,” then press ENTER.**
The display for selecting the scene insertion point appears.

② **Press ↑/↓ to select the point, then press ENTER.**
The scene moves to the selected location.

◆ **To reset the start or end of the scene**

Press ↑/↓ to select “Change IN” or “Change OUT,” then press ENTER.

◆ **To preview the scene**

Press ↑/↓ to select “Preview,” then press ENTER.

To cancel, press ←/↑/↓/→ to select “Quit,” then press ENTER.

8 **When you finish editing the Scene List, press ←/↑/↓/→ to select “OK,” then press ENTER.**
The display asks if you want to make a Playlist title. If you select “No,” the edited program is saved, and the display returns to the DV Edit List. Note that the original program will be rewritten.

9 **Press ←/→ to select “Yes,” then press ENTER.**
The display for entering a Playlist title name appears. To enter a new name, select “Enter,” and follow the explanations on *page 18*.

10 **To use the default name, press ←/→ to select “OK,” then press ENTER.**
A Playlist title of the default title name is created on the same disc, and the display returns to the DV Edit List.
You now have a disc containing both the entire contents of the DV/Digital8 format tape and a Playlist of the selected scenes.
To edit the Playlist title, *see “Advanced Editing (Playlist Edit)” (page 54).*

11 **Dub the selected scenes to a disc.**
Make copies of the selected scenes to a disc of your choice. Go to step 4 of *“Creating a Copy of the Edited Contents (Copy Dubbing)” (page 69).*

To preview a program

After you edit a program, you can preview the changes you made.

1. **While the DV Edit List is displayed, press ↑/↓ to select the program, then press ENTER.**
2. **Press ↑/↓ to select “Preview,” from the sub-menu, then press ENTER.**

To create a Playlist title of the program

After you edit a program, you can create a Playlist title of the edited program. The Playlist will be created on the inserted DVD-RWs (VR mode).

1. **While the DV Edit List is displayed, press ↑/↓ to select the program, then press ENTER.**
2. **Press ↑/↓ to select “Make a Playlist,” from the sub-menu, then press ENTER.**
   The display for entering a Playlist title name appears. To enter a new name, select “Enter,” and follow the explanations on *page 18*.

3. **To use the default name, press ←/→ to select “OK,” then press ENTER.**

Notes

- You cannot set a scene to be shorter than one second.
- In order for a One Touch Dub recording to be added to the DV Edit List, “Add to Edit List” in Features Setup must be set to “On” *(page 81)*.

Creating a Copy of the Edited Contents (Copy Dubbing)

-RW VR -RW VIDEO +RW -R

You can make copies of the programs in the DV Edit List. Each time you dub a DV/Digital8 format tape, the start and stop points of the selected scenes (called a “program”) are saved in a DV Edit List. You can select a program from the DV Edit List and use this information to copy the same contents onto another disc of your choice.

To use this function, you will do the following:

Connect your digital video camera and prepare for recording

Be sure to insert the original DV/Digital8 format tape that corresponds to the program in the DV Edit List.

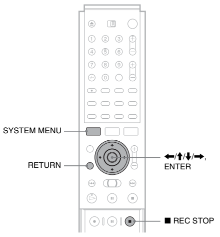
↓

Select a program from the DV Edit List

↓

Dub the selected scenes to a disc

The recorder will fast forward and rewind the tape automatically and record the scenes to a disc of your choice. On a DVD-RW (VR mode), chapter marks are inserted at the start of each scene and where the recordings stop on the tape. For other discs, the recorder marks chapters either in 6 or 15 minute intervals depending on the setting in “Auto Chapter” in Features Setup (page 79)

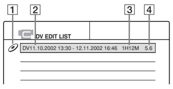


1 **Follow steps 1 to 7 of “*Preparing for recording using the DV IN jack” (page 59)*, then press SYSTEM MENU.**
Be sure to insert the original DV/Digital8 format tape that corresponds to the program in the DV Edit List.

2 **Press ↑/↓ to select “DV EDIT,” then press ENTER.**
The DV Edit menu appears.

→continued

3 **Press ↑/↓ to select “DV Edit List,” then press ENTER.**
The DV Edit List menu appears.



1 **Disc mark**

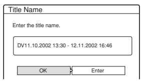
1 **Program name**

2 **Total playing time**

3 **Date of editing or recording**

4 **Press ↑/↓ to select the program you want to record on a disc, then press ENTER.**
The sub-menu appears.

5 **Press ↑/↓ to select “DV Dubbing,” then press ENTER.**
The display for entering a title name appears.



Title Name

Enter the title name.

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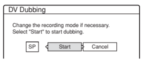
To enter a new name, select “Enter,” and follow the explanations on *page 18*.

6 **To use the default name, press ←/→ to select “OK,” then press ENTER.**
The default title name is fixed, and the display asks whether to start recording. If you want to change the recording mode, press ←/→ to move the cursor then press ↑/↓ to select the mode.



DV Dubbing

Change the recording mode if necessary.
Select "Start" to start dubbing.

7 **Press ←/→ to select “Start,” then press ENTER.**
The recorder starts recording the tape contents as programmed.
To stop during recording, press ■ REC STOP.

8 **When the recording is finished, press ENTER to select “Close.”**
The display returns to the DV Edit List menu.

9 **Press RETURN repeatedly to turn off the display.**

To change the name of a program

1. **While the DV Edit List is displayed, press ↑/↓ to select the program name you want to change, then press ENTER.**
2. **Press ↑/↓ to select “Rename” from the sub-menu, then press ENTER.**
   The display for entering the program name appears.
3. **Enter a name by following the explanation on *page 18*.**

To erase a program

1. **While the DV Edit List is displayed, press ↑/↓ to select the program you want to erase, then press ENTER.**
2. **Press ↑/↓ to select “Erase” from the sub-menu, then press ENTER.**
3. **Press ←/→ to select “OK,” then press ENTER.**

Hints

- You can preview the scenes within the program title by selecting “Preview” in step 5.
- On a DVD-RW (VR mode), chapter marks are inserted at the start of each scene and where the recordings stop on the tape. For other discs, the recorder marks chapters either in 6 or 15 minute intervals depending on the setting in “Auto Chapter” in Features Setup (page 79)

Notes

- If you want to play the disc on other DVD equipment, finalize the disc (*page 34*).
- In order for a One Touch Dub recording to be added to the DV Edit List, “Add to Edit List” in Features Setup must be set to “On” *(page 81).*
- Copy dubbing may not work if you have edited sections that do not contain any recorded material.
- This function may not work with certain digital video cameras. In this case, follow the instructions of *“Recording From Equipment Connected to the LINE IN Jacks” (page 71).*

Recording From Equipment Connected to the LINE IN Jacks

-RW VR -RW VIDEO +RW -R

You can connect other equipment (e.g. a VCR or video camera), and output the audio/video signals to the recorder for recording. Use the DV IN jack on the front panel if the equipment has a DV output jack (i.LINK jack) *(page 59)*.
See also the instruction manual supplied with the connected equipment.

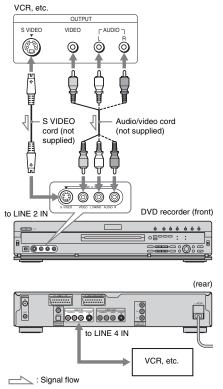
◆**If you cannot use the DV Edit functions**

Follow the steps of “*Recording from connected equipment*” below, and do the following:

– Connect your digital video camera to the DV IN jack on the front panel.
– Select the input audio signal for the digital video camera in step 4.

Connecting other equipment to the LINE 2 IN or LINE 4 IN jacks

You can monitor the recorded picture with a TV connected to the recording equipment.



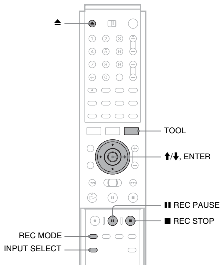
Hint

When the connected equipment outputs only monaural sound, use audio cables that distribute monaural sounds to left/right channels (not supplied).

Notes

- Do not connect the yellow LINE IN (VIDEO) jack when using an S VIDEO cord (not supplied).
- Do not connect the output jack of this recorder to another equipment’s input jack with the other equipment’s output jack connected to the input jack of this recorder. Noise (feedback) may result.
- Pictures containing copy protection signals that prohibit any copying cannot be recorded.

Recording from connected equipment



1 **Turn on your TV and this recorder, then set it to the connected channel (“VIDEO,” etc.).**

2 **Press ⏏, and place a recordable disc on the tray.**

3 **Press ⏏ to close the disc tray.**
Wait until “LOAD” disappears from the front panel display.

4 **Press INPUT SELECT to select a input source according to the connection.**
The front panel display changes as follows:

Programme position → L1 → L2 → L3 → L4 → DV

5 **Press REC MODE repeatedly to select the recording mode.**
The recording mode changes as follows:

HQ → HSP → SP → LP → EP → SLP

→continued

6 **Select the audio input using the Tool menu.**

① **Press TOOL.**

② **Press ↑/↓ to select “Line Audio Input,” then press ENTER.**

③ **Press ↑/↓ to select the item, then press ENTER.**
- Stereo (default)
- Bilingual*

* When recording a bilingual programme on a DVD-RW (Video mode), DVD+RW, or DVD-R, select the sound track, “Main” or “Sub”, in “Bilingual Recording” of Options Setup (*page 82*).

7 **Press ❚❚ REC PAUSE to set this recorder to record pause.**

8 **Insert the source tape into the connected equipment and set to playback pause.**

9 **At the same, press ❚❚ REC PAUSE on this recorder and the pause or play button on the connected equipment.**
Recording starts.

10 **To stop recording, press ■ REC STOP on this recorder.**

Hint
You can adjust the settings for the recording picture before recording. *See “Adjusting the Recording Picture Quality and Size” (page 30).*

Note
When recording a video game image, the screen may not be clear.

Settings and Adjustments

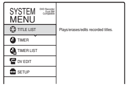
The Setup Displays allow you to adjust the recorder to suit your preferences.
This section first lists the types of Setup Displays, and then explains how to use the Setup Displays *(“Using the Setup Displays”).*

- *About the Setup Display Structure . . . .page 73*
- *Using the Setup Displays . . . . .page 74*
- *Settings (Basic Settings) . . . . .page 75*
- *Video Settings . . . . .page 76*
- *Audio Settings . . . . .page 78*
- *Features Settings . . . . .page 79*
- *Options Settings. . . . . .page 82*
- *Easy Setup (Resetting the Recorder) . . . . .page 83*

About the Setup Display Structure

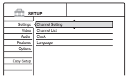
By using the Setup Displays, you can make various adjustments to items such as picture and sound, as well as select a language for the subtitles.

System Menu

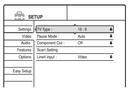

SYSTEM MENU
DVD Recorder Dual RW Compatible
TITLE LIST
TIMER
TIMER LIST
DV EDIT
SETUP
Plays/erases/edits recorded titles.

Select “SETUP”

Setup Displays

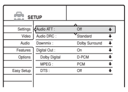

SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

1. “Settings” *(page 75)*


SETUP
Settings
Video
Audio
Features
Options
Easy Setup

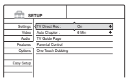
TV Type : 16 : 9
Pause Mode : Auto
Component Out : Off
Scart Setting
Line4 input : Video

2. “Video” *(page 76)*


SETUP
Settings
Video
Audio
Features
Options
Easy Setup

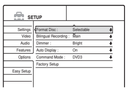
Audio ATT : Off
Audio DRC : Standard
Downmix : Dolby Surround
Digital Out : On
Dolby Digital D-PCM
MPEG : PCM
DTS : Off

3. “Audio” *(page 78)*


SETUP
Settings
Video
Audio
Features
Options
Easy Setup

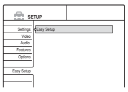
TV Direct Rec : On
Auto Chapter : 6 Min
TV Guide Page
Parental Control
One Touch Dubbing

4. “Features” *(page 79)*


SETUP
Settings
Video
Audio
Features
Options
Easy Setup

Format Disc : Selectable
Bilingual Recording : Main
Dimmer : Bright
Auto Display : On
Command Mode : DVD3
Factory Setup

5. “Options” *(page 82)*

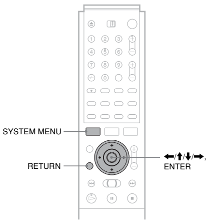

SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Easy Setup

6. “Easy Setup” *(page 83)*

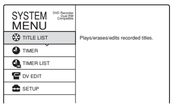
Using the Setup Displays

The Setup Displays are used in the following way.

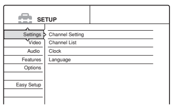
Note
Playback settings stored in the disc take priority over the Setup Display settings, and not all the functions described may work.


SYSTEM MENU
RETURN
←/↑/↓/→, ENTER

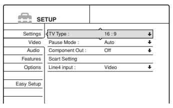
1 **Press SYSTEM MENU while the recorder is stopped.**
The System Menu appears.


SYSTEM MENU
DVD Recorder Dual RW Compatible
TITLE LIST
TIMER
TIMER LIST
DV EDIT
SETUP
Plays/erases/edits recorded titles.

2 **Press ↑/↓ to select “SETUP,” then press ENTER.**
The Setup Display appears.

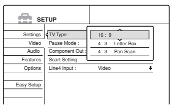

SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

3 **Press ↑/↓ to select “Settings,” “Video,” “Audio,” “Features,” “Options,” or “Easy Setup,” then press ENTER.**
The selected Setup Display appears.
Example: “Video”

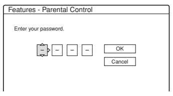

SETUP
Settings
Video
Audio
Features
Options
Easy Setup

TV Type : 16 : 9
Pause Mode : Auto
Component Out : Off
Scart Setting
Line4 input : Video

4 **Press ↑/↓ to select the item you want to set up, then press ENTER.**
Available options for the item appear.
Example: “TV Type”

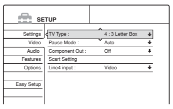

SETUP
Settings
Video
Audio
Features
Options
Easy Setup
TV Type :
Pause Mode :
Component Out :
Scart Setting
Line4 Input : Video
16 : 9
4 : 3 Letter Box
4 : 3 Pan Scan

Some items display a dialogue box that provides further detailed settings.
Example: The following dialogue box appears when “Parental Control” in Features Setup is selected.


Features - Parental Control
Enter your password.
– – – –
OK
Cancel

In this case, see “Parental Control” in “*Features Settings*” *(page 80)*.

5 **Press ↑/↓ to select an option, then press ENTER.**
The set option is displayed next to the setup item.
Example: when “4:3 Letter Box” is set.


SETUP
Settings
Video
Audio
Features
Options
Easy Setup

TV Type : 4 : 3 Letter Box
Pause Mode : Auto
Component Out : Off
Scart Setting
Line4 input : Video

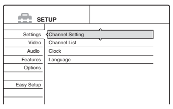
To turn off the display

Press SYSTEM MENU repeatedly.

Settings (Basic Settings)

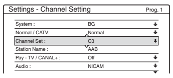
The Settings Setup helps you to make fundamental settings for the recorder. Since you will have already made the settings here when setting up the recorder, *see “Advanced Hookups and Settings” in the separate booklet, “Hookups and Settings”* to make changes to the items below.

Select “Settings” in the Setup Display. To use the display, *see “Using the Setup Displays” (page 74).*
The default settings are underlined.


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

Channel Setting

Sets contents for each of the programme positions. Press PROG +/– to select a programme position you want to set up, then set the following items if necessary.


Settings - Channel Setting
Prog. 1

System : BG
Normal / CATV: Normal
Channel Set : C3
Station Name : AAB
Pay - TV / CANAL+ : Off
Audio : NICAM

◆System
Selects the TV system.

BG	Select this when in West European countries, except those listed below.
DK	Select this when in East European countries.
I	Select this when in Great Britain/Ireland.
L	Select this when in France.

◆Normal/CATV

Normal	Normally, select this.
CATV	Select this if the programme position is for Cable TV.

◆Channel Set
Sets the channel number.

◆Station Name
Enters/Re-enters the station name.

◆PAY-TV/CANAL+

On	Select this if the programme position is for PAY TV or Canal Plus.
Off	Normally, select this.

◆Audio
Sets the sound for the programme position.

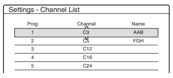
NICAM	Normally, select this.
Standard	Select this if the sound from NICAM broadcasts is not clear.

◆AFT
Turns on or off the Auto Fine Tuning function.

On	Normally, select this.
Off	Allows you to adjust the pictures manually. Select this if the Auto Fine Tuning function does not work effectively.

Channel List

Rearranges the programme order.


Settings - Channel List

Prog	Channel	Name
1	C3	AAB
2	C5	FGH
3	C12	
4	C16	
5	C24	

Clock

◆Auto Adjust

On	Turns on the Auto Clock Set function when a station in your local area broadcasts a time signal. Sets the programme number that broadcasts the time signal.
Off	Turns off the Auto Clock Set function. In this case, set the clock manually. *(See “Setting the clock manually” in the separate booklet, “Hookups and Settings.”)*

◆Present Time
Displays the current time and date.
You can input the current time and date when “Auto Adjust” is set to “Off.”

Language

◆OSD (On-Screen Display)
Switches the display language on the screen.

◆DVD Menu
Switches the language for the DVD menu.

◆Audio
Switches the language of the sound track.
When you select “Original,” the language given priority in the disc is selected.

➡continued

◆Subtitle

Switches the language of the subtitles recorded on the disc. When you select “Audio Follow,” the subtitle language changes according to the language you selected for the sound track.

Hint

If you select “Others” in “DVD Menu,” “Subtitle,” or “Audio,” select and enter a language code from “*Language Code List*” *(page 92)* using the number buttons.

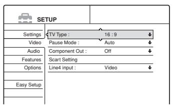
Note

If you select a language in “DVD Menu,” “Subtitle,” or “Audio” that is not recorded on the DVD VIDEO, one of the recorded languages will be automatically selected.

Video Settings

Choose the settings according to the TV, tuner, or decoder to be connected.

Select “Video” in the Setup Display. To use the display, *see “Using the Setup Displays” (page 74)*.
The default settings are underlined.

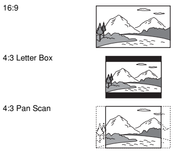


TV Type : 16 : 9
Pause Mode : Auto
Component Out : Off
Scart Setting
Line4 input : Video

TV Type

Selects the aspect ratio of the connected TV (4:3 standard or wide).

16:9	Select this when connecting to a wide-screen TV or TV with a wide mode function.
4:3 Letter Box	Select this when connecting to a 4:3 screen TV. Displays a wide picture with bands on the upper and lower portions of the screen.
4:3 Pan Scan	Select this when connecting to a 4:3 screen TV. Automatically displays a wide picture on the entire screen and cuts off the portions that do not fit.



Note

Depending on the disc, “4:3 Letter Box” may be selected automatically instead of “4:3 Pan Scan” or vice versa.

Pause Mode (DVDs only)

Selects the picture in pause mode.

Auto	The picture, including subjects that move dynamically, is output with no jitter. Normally select this position.
Frame	The picture, including subjects that do not move dynamically, is output in high resolution.

Component Out

Selects if the video signals are output from the COMPONENT VIDEO OUT jacks.

On	Outputs the component video signals.
Off	Outputs no signals.

Notes

- When you set “Line 1 Output” to “RGB,” you cannot set “Component Out” to “On.”
- When you connect the recorder to a monitor or projector via only the COMPONENT VIDEO OUT jacks, do not select “Off.” If you select “Off” in this case, the picture may not appear.

Scart Setting

Sets the method of inputting/outputting signals from the SCART (EURO AV) jacks on the rear panel of the recorder. Select an option for each of the items below according to the combination of jacks and methods that you are going to use.

◆Line1 Output

Selects a method of inputting video signals for the LINE 1-TV jack.

Video	Outputs video signals.
S Video	Outputs S video signals.
RGB	Outputs RGB signals.

Notes

- If your TV does not accept S video or RGB signals, no picture appears on the TV screen even if you select “S Video” or “RGB.” See the instructions supplied with your TV.
- You cannot select ”RGB” when “Component Out” above is set to “On.”
- SMARTLINK is available only when “Video” is selected.

◆Line3 Input

Selects a method of inputting video signals for the LINE 3/DECODER jack.

Video/RGB	Inputs video signals or RGB signals.
S Video	Inputs S video signals.
Decoder	Select this when connecting to a PAY-TV/Canal Plus decoder.

◆Line3 Output

Selects a method of outputting video signals for the LINE 3/DECODER jack.

Video	Outputs video signals.
S Video	Outputs S video signals.

Line4 Input

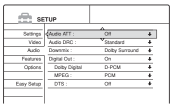
Selects the method of inputting video signals from the LINE 4 IN jack on the rear panel of the recorder.

Video	Inputs video signals.
S Video	Inputs S video signals.

Audio Settings

The Audio Setup allows you to set the sound according to the playback and connection conditions.

Select “Audio” in the Setup Display. To use the display, *see “Using the Setup Displays” (page 74)*.
The default settings are underlined.



Audio ATT : Off
Audio DRC : Standard
Downmix : Dolby Surround
Digital Out : On
Dolby Digital D-PCM
MPEG : PCM
DTS : Off

Audio ATT (attenuation)

If the playback sound is distorted, set this item to “On.” The recorder reduces the audio output level.
This function affects the output of the following jacks:
–LINE 2 OUT AUDIO L/R jacks
–LINE 1-TV jack
–LINE 3/DECODER jack

On	Select this when the playback sound from the speakers is distorted.
Off	Normally select this position.

Audio DRC (Dynamic Range Control) (DVDs only)

Makes the sound clear when the volume is turned down when playing a DVD that conforms to “Audio DRC.” This affects the output from the following jacks:
–LINE 2 OUT AUDIO L/R jacks
–LINE 1-TV jack
–DIGITAL OUT (OPTICAL or COAXIAL) jack only when “Dolby Digital” is set to “D-PCM” *(page 78)*.
–LINE 3/DECODER jack

Standard	Normally select this position.
TV Mode	Makes low sounds clear even if you turn the volume down.
Wide Range	Gives you the feeling of being at a live performance.

Downmix (DVDs only)

Switches the method for mixing down to two channels when you play a DVD which has rear sound elements (channels) or is recorded in Dolby Digital format. For details on the rear signal components, *see “Checking the audio signal format” (page 45)*.
This function affects the output of the following jacks:
–LINE 2 OUT AUDIO L/R jacks
–LINE 1-TV jack
–DIGITAL OUT (OPTICAL or COAXIAL) jack when “DOLBY DIGITAL” is set to “D-PCM” *(page 78)*.
–LINE 3/DECODER jack

Dolby Surround	Normally select this position. Multi-channel audio signals are output to two channels for enjoying surround sounds.
Normal	Multi-channel audio signals are downmixed to two channels for use with your stereo.

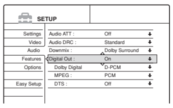
Digital Out

Selects if audio signals are output via the DIGITAL OUT (OPTICAL or COAXIAL) jack.

On	Normally select this position. When you select “On,” *see “Setting the digital output signal”* for further settings.
Off	The influence of the digital circuit upon the analogue circuit is minimal.

◆Setting the digital output signal

The following setup items switch the method of outputting audio signals when you connect a component such as an amplifier (receiver) or MD deck with a digital input jack.
For connection details, *see “Connecting the Audio Cords” in the separate booklet, “Hookups and Settings.”*
Select “Dolby Digital,” “MPEG,” and “DTS” after setting “Digital Out” to “On.”



Audio ATT : Off
Audio DRC : Standard
Downmix : Dolby Surround
Digital Out : On
Dolby Digital D-PCM
MPEG : PCM
DTS : Off

If you connect a component that does not accept the selected audio signal, a loud noise (or no sound) will come out from the speakers, and may affect your ears or cause speaker damage.

Dolby Digital (DVDs only)

Selects the type of Dolby Digital signal.

D-PCM	Select this when the recorder is connected to an audio component lacking a built-in Dolby Digital decoder. You can select whether the signals conform to Dolby Surround (Pro Logic) or not by making adjustments to the “Downmix” item in Audio Setup *(page 78)*.
Dolby Digital	Select this when the recorder is connected to an audio component with a built-in Dolby Digital decoder.

MPEG (DVD VIDEO only)

Selects the type of MPEG audio signal.

PCM	Select this when the recorder is connected to an audio component without a built-in MPEG decoder. If you play MPEG audio sound tracks, the recorder outputs stereo signals via the DIGITAL OUT (OPTICAL or COAXIAL) jack.
MPEG	Select this when the recorder is connected to an audio component with a built-in MPEG decoder.

DTS (DVD VIDEO only)

Selects whether or not to output DTS signals.

On	Select this when the recorder is connected to an audio component with a built-in DTS decoder.
Off	Select this when the recorder is connected to an audio component without a built-in DTS decoder.

Note

When you use the DIGITAL OUT (OPTICAL or COAXIAL) jack to listen to MPEG audio signals and set “MPEG” to “MPEG” in Audio Setup, no sound will come from your speakers if you select one of the TVS modes.

Features Settings

The Features Setup provides entries to the following features.

TV Direct Rec (DVD-RW/DVD+RW/DVD-R only)

On	Allows you to easily record what you are watching on the TV using SMARTLINK.
Off	Turns off the TV Direct Rec function.

Auto Chapter (DVD-RW in Video mode/DVD+RW/DVD-R only)

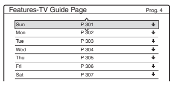
Automatically divides a recording (a title) into chapters by inserting chapter markings at a specified interval. The markings are made during recording.

Off	No chapter mark is inserted.
6Min	Inserts chapter marks at approximately 6 minute intervals.
15Min	Inserts chapter marks at approximately 15 minute intervals.

TV Guide Page

Some broadcast systems ensure a Teletext service* in which the complete programmes and their data (title, date, channel, recording start time, etc.) are stored day by day. A TV guide page corresponds to each day of the week. When recording a programme, the recorder automatically takes the programme name from the Teletext pages and stores it as the title name. The TV guide page numbers depend entirely on the broadcast itself and may be subject to change. If so, you may have to set those TV guide page numbers manually in the TV Guide Page menu.
* Not available in some areas.

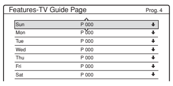
1. **Follow steps 1 to 3 of *“Using the Setup Displays” (page 74)* to select “Features” in the Setup Display.**
2. **Press ↑/↓ to select “TV Guide Page” then press → or ENTER.**
   The dialogue box appears.
3. **Select the programme position for which you want to set or change the TV guide page.**
   - The TV guide page numbers appear automatically when the recorder detects them example: (P301).



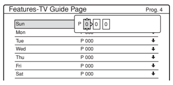
Sun P 301
Mon P 302
Tue P 303
Wed P 304
Thu P 305
Fri P 306
Sat P 307

→continued

- If the recorder does not detect them (P000), you have to set the appropriate TV guide page number manually.



4 **Press ↑/↓ to select the TV guide page number you want to modify, then press ENTER.**



5 **Press the number buttons to enter the TV guide page number, then press ENTER to confirm the setting.**
If you make a mistake, press CLEAR to re-enter the correct number.

6 **To set or change another TV guide page number, repeat steps 4 and 5 above.**

7 **Press SYSTEM MENU repeatedly to turn off the display.**

Notes

- In step 6 above, enter "000" if you don't want to use the TV guide page number for automatic labelling. The recorder will instead store a default title name (programme position, start time - stop time)
- Refer to the Teletext information on your TV screen to get the TV guide page number with the programme titles and their start times.
- If the Teletext TV guide has a page which always shows the programmes for the current day, this page should be input for all days.
- If you start recording more than three minutes before the programme is scheduled to start, the correct label information may not be transferred. The recorder receives the label information three minutes after the recording starts.
- Note that this function may not work correctly with programmes broadcast from some stations.
- If the broadcast system updates the Teletext information at the moment recording starts, the title label may not correspond to the recorded programme. In this case, you may have to manually enter the correct title (*page 51*).

Parental Control (DVD VIDEO only)

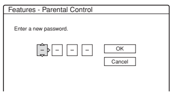
Playback of some DVD VIDEOs can be limited according to a predetermined level, such as the age of the users. Scenes may be blocked or replaced with different scenes.

1 **Follow steps 1 to 3 of "*Using the Setup Displays*" *(page 74)* to select "Features" in the Setup Display.**

2 **Press ↑/↓ to select "Parental Control," then press ENTER.**

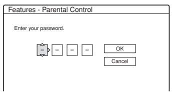
◆If you have not entered a password

The display for registering a new password appears.

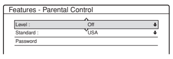


◆When you have already registered a password

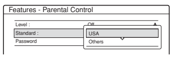
The display for entering the password appears.



3 **Enter your four digit password using the number buttons, then select "OK" and press ENTER.**

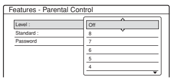


4 **Press ↑/↓ to select "Standard," then press → or ENTER.**
The selection items for "Standard" are displayed.



5 **Press ↑/↓ to select a geographic area as the playback limitation level, then press ENTER.**
The area is selected.
When you select "Others," press the number buttons to select and enter an area code in the table on *page 81*. Then select "OK" and press ENTER.

6 **Press ↑/↓ to select "Level," then press ENTER.**
The selection items for "Level" are displayed.



7 **Select the level you want using ↑/↓, then press ENTER.**
Parental Control setting is complete.
The lower the value, the stricter the limitation.

◆To cancel the Parental Control setting for the disc

Set "Level" to "Off" in step 7.

◆To change the password

① **In step 4, select "Password," then press ENTER.**
The display for registering a password appears.

② **Enter a new four-digit password using the number buttons, then select "OK" and press ENTER.**

Notes

- If you forget your password, you will have to reset it by selecting "Parental Control" of "Factory Setup" in Options Setup (*page 82*).
- When you play discs which do not have the Parental Control function, playback cannot be limited on this recorder.
- Depending on the disc, you may be asked to change the Parental Control level while playing the disc. In this case, enter your password, then change the level. If the Resume Play mode is cancelled, the level returns to the previous level.

◆Area code

Standard	Code number
Argentina	2044
Australia	2047
Austria	2046
Belgium	2057
Brazil	2070
Canada	2079
Chile	2090
China	2092
Denmark	2115
Finland	2165
France	2174
Germany	2109
India	2248
Indonesia	2238
Italy	2254
Japan	2276
Korea	2304
Malaysia	2363
Mexico	2362
Netherlands	2376
New Zealand	2390
Norway	2379
Pakistan	2427
Philippines	2424
Portugal	2436
Russia	2489
Singapore	2501
Spain	2149
Sweden	2499
Switzerland	2086
Thailand	2528
United Kingdom	2184

One Touch Dubbing

Displays the following items.

◆Finalize Disc

Selects whether or not to finalize the disc automatically following One Touch Dub (*page 62*).

Auto	Automatically finalizes the disc following One Touch Dub.
Manual	Allows you to finalize the disc manually.

◆Add to Edit List

Automatically generates a program in the DV Edit List during One Touch Dub of DV/Digital8 format tapes. You can use the created program for further editing. For details, *see page 61*.

On	Automatically generates a program during One Touch Dub of DV/Digital8 format tapes.
Off	No program is generated.

Options Settings

The Options Setup allows you to set up other operational settings.

Select "Options" in the Setup Display. To use the display, *see "Using the Setup Displays" (page 74)*.
The default settings are underlined.

Format Disc (DVD-RW only)

Selects the recording format when formatting a DVD-RW.

VR	Automatically formats the disc in VR mode.
Video	Automatically formats the disc in Video mode.
Selectable	Allows you to select the format before formatting.

Bilingual Recording (for all recordable discs except DVD-RW in VR mode)

Selects the sound to be recorded on the disc. This setting is not necessary when recording on DVD-RWs (VR mode) that record both the main and sub sounds.

Main	Records the main sound for the bilingual programme.
Sub	Records the sub sound for the bilingual programme.

Dimmer

Adjusts the lighting of the front panel display.

Bright	Bright lighting.
Dark	Low lighting.
Off	Turns off the lighting.

Auto Display

On	Automatically displays information on the screen when the recorder is turned on, etc.
Off	Displays information only when DISPLAY is pressed.

Command Mode

Changes the Command Mode of the recorder if other DVD equipment is assigned the same Command Mode. Be sure to match the Command Mode switch on the remote to the setting made here. For details, *see "Preparing the Remote" in the separate booklet, "Hookups and Setting."*

DVD1	Select this when the default Command Mode conflicts with other DVD equipment.
DVD2	Select this when the default Command Mode conflicts with other DVD equipment.
DVD3	The default Command Mode of the recorder.

Factory Setup

Allows you to select the setup settings by group, and return them to the default settings. Note that all of your previous settings will be lost.

1 **Follow steps 1 to 3 of "*Using the Setup Displays*" *(page 74)* to select "Options" in the Setup Display.**

2 **Press ↑/↓ to select "Factory Setup," then press → or ENTER.**
The display for selecting the group of settings appears.

3 **Press ↑/↓ to select the group of settings you want to return to default from "Settings," "Video," "Audio," "Features," "Options" "Parental Control," and "All," then press → or ENTER.**
The dialogue box appears.

4 **Press ←/→ to select "Start," then press ENTER.**
The selected settings return to the default settings.

5 **Press ENTER when "Finish" appears.**

Easy Setup (Resetting the Recorder)

Select this to restart Easy Setup mode for basic setup.

Select "Easy Setup" in the Setup Display. To use the display, *see "Using the Setup Displays" (page 74)*.

Easy Setup

1 **Follow steps 1 to 3 of "*Using the Setup Displays*" *(page 74)* to select "Easy Setup" in the Setup Display.**

2 **Follow the Easy Setup explanation in the separate booklet, *"Hookups and Settings."***

Additional Information

- *Troubleshooting . . . . page 84*
- *Self-diagnosis Function (When letters/numbers appear in the display) . . . . page 88*
- *Specifications . . . . page 89*
- *About i.LINK . . . . page 90*
- *Glossary . . . . page 91*
- *Language Code List . . . . page 92*

Troubleshooting

If you experience any of the following difficulties while using the recorder, use this troubleshooting guide to help remedy the problem before requesting repairs. Should any problem persist, consult your nearest Sony dealer.

Power

The power does not turn on.

- ➡ Check that the mains lead is connected securely.

Picture

There is no picture.

- ➡ Re-connect the connecting cord securely.
- ➡ The connecting cords are damaged.
- ➡ The Setup Display appears. Press RETURN to turn off the display.
- ➡ Check the connection to your TV. *(See the separate booklet, "Hookups and Settings.")*
- ➡ Check that "Scart Setting" in Video Setup is set to the appropriate item that conforms to your system (*page 77*).
- ➡ Switch the input selector on your TV (such as to "VCR") so that the signal from the recorder appears on the TV screen.
- ➡ If you connect the recorder to your TV via only the COMPONENT VIDEO OUT jacks, set "Component Out" in Video Setup to "On" (*page 77*).

Picture noise appears.

- ➡ The disc is dirty or flawed.
- ➡ If the picture output signal from your recorder passes through your VCR to get to your TV, or if you are connected to a combination TV/VIDEO player, the copy-protection signal applied to some DVD programmes could affect picture quality. If you still experience this problem even when you connect your recorder directly to your TV, please try connecting your recorder to your TV's S VIDEO input.
- ➡ You are playing a disc recorded in a colour system that is different from your TV.

TV programme reception does not fill the screen.

- ➡ Set the channel manually in "Channel Setting" in Settings Setup. *(See the separate booklet, "Hookups and Settings.")*
- ➡ Select the correct source using the INPUT SELECT button, or select a programme position of any TV programme using the PROG +/– buttons.

TV programme pictures are distorted.

- ➡ Reorient the TV aerial.
- ➡ Adjust the picture. *(See the separate booklet, "Hookups and Settings.")*
- ➡ Place the recorder and TV farther apart.
- ➡ Place the TV and any bunched aerial cables farther apart.

TV channels cannot be changed.

- ➡ Switch the input selector to TV.
- ➡ Connect the aerial cable correctly. *(See the separate booklet, "Hookups and Settings.")*

The picture from equipment connected to the recorder's input jack does not fill the screen.

- ➡ If the equipment is connected to the LINE 1-TV jack, select "L1" in the front panel display by pressing PROG +/– or INPUT SELECT.

  If the equipment is connected to the LINE 2 IN jacks, select "L2" in the front panel display by pressing PROG +/– or INPUT SELECT.

  If the equipment is connected to the LINE 3/DECODER jack, select "L3" in the front panel display by pressing PROG +/– or INPUT SELECT.

  If the equipment is connected to the LINE 4 IN jacks, select "L4" in the front panel display by pressing PROG +/– or INPUT SELECT.

  If the equipment is connected to the DV IN jack, (this is usually for a digital video camera connection), select "DV" in the front panel display by pressing PROG +/– or INPUT SELECT.

The playback picture or TV programme from the equipment connected through the recorder is distorted.

- ➡ If the playback picture output from a DVD player, VCR, or tuner goes through your recorder to get to your TV, the copy-protection signal applied to some programmes could affect picture quality. Disconnect the playback equipment in question and connect it directly to your TV.

The picture does not fill the screen, even though the aspect ratio is set in "TV Type" in Video Setup.

- ➡ The aspect ratio of the disc is fixed on your DVD.

The picture is black and white.

- ➡ Check that "Line1 Output" of "Scart Setting" in Video Setup is set to the appropriate item that conforms to your system (*page 77*).
- ➡ If you are using a SCART (EURO AV) cord, be sure to use one that is fully wired (21 pins).

Sound

There is no sound.

- ➡ The disc is dirty or flawed.
- ➡ Re-connect all connections securely.
- ➡ The connecting cord is damaged.
- ➡ Check the connections to the amplifier input.
- ➡ The input source setting on the amplifier is incorrect
- ➡ The recorder is in pause mode or in Slow-motion Play mode.
- ➡ The recorder is in fast forward or fast reverse mode.
- ➡ If the audio signal does not come through the DIGITAL OUT (OPTICAL or COAXIAL) jacks, check the Audio Setup settings *(page 78)*.

Sound distortion occurs.

- ➡ Set "Audio ATT" in Audio Setup to "On" (*page 78*).

Sound is noisy.

- ➡ The disc is dirty or flawed.
- ➡ When playing a CD with DTS sound tracks, noise will come from the LINE 2 OUT AUDIO L/R jacks, LINE 1-TV jack, or LINE 3/DECODER jack. *(See the separate booklet, "Hookups and Settings.")*

The sound volume is low

- ➡ The sound volume is low on some DVDs.
  The sound volume may improve if you set "Audio DRC" in Audio Setup to "TV Mode" (*page 78*).
- ➡ Set "Audio ATT" in Audio Setup to "Off" (*page 78*).

The language for the sound track cannot be changed.

- ➡ Multilingual tracks (main and sub) cannot be recorded on DVD-RWs (Video mode), DVD+RWs, or DVD-Rs. To record the language, select "Main" or "Sub" of "Bilingual Recording" in Options Setup before recording (*page 82*). To record both the main and sub sounds, record on a DVD-RW (VR mode).

Playback

The disc does not play.

- ➡ No disc is inserted.
- ➡ A blank disc is inserted.
- ➡ The disc is upside down.
  Insert the disc with the labelled side facing up.
- ➡ The disc is not correctly inserted.
- ➡ The recorder cannot play certain discs (such as a CD-ROM) *(page 37)*.
- ➡ The region code on the DVD VIDEO does not match the recorder *(page 36)*.
- ➡ Moisture has condensed inside the recorder. Remove the disc and leave the recorder turned on for about half an hour until the moisture evaporates *(page 2)*.
- ➡ If the disc was recorded on another recorder, the recorder cannot play the disc if it was not finalized *(page 34)*.

The disc does not start playback from the beginning.

- ➡ Resume play was activated *(page 40)*. During stop, select "Reset Resume" in the Tool menu, then press ENTER.
- ➡ You have inserted a disc whose Title menu or DVD menu automatically appears on the TV screen when it is first inserted.

The recorder starts playing the disc automatically.

- ➡ The DVD VIDEO features an auto playback function.

Playback stops automatically.

- ➡ While playing discs with an auto pause signal, the recorder stops playback at the auto pause signal.

➡*continued*

Some functions such as Stop, Search, or Slow-motion Play cannot be performed.

- ➡ Depending on the disc, you may not be able to do some of the operations above. See the instruction manual supplied with the disc.

The language for the sound track cannot be changed.

- ➡ Multilingual tracks are not recorded on the DVD VIDEO, DVD-R, DVD+R, DVD+RW, or DVD-RW being played.
- ➡ The DVD VIDEO prohibits the changing of the language for the sound track.
- ➡ Try changing the language using the DVD VIDEO's menu.

The subtitle language cannot be changed or turned off.

- ➡ Multilingual subtitles are not recorded on the DVD VIDEO.
- ➡ The DVD VIDEO prohibits changing of the subtitles.
- ➡ Try changing the subtitle using the DVD VIDEO's menu.

The angles cannot be changed.

- ➡ Multi-angles are not recorded on the DVD VIDEO being played.
- ➡ You are trying to change the angles when "ANGLE" does not appear on the TV screen *(page 46)*.
- ➡ The DVD VIDEO prohibits changing angles.
- ➡ Try changing the angle using the DVD VIDEO's menu.

Recording/Timer recording/Editing

The programme position cannot be changed from the channel you are recording.

- ➡ Set the TV's input source to "TV."

Recording does not start immediately after you press the ● REC button.

- ➡ An unused DVD-RW was inserted. It takes a while for the recorder to automatically format a DVD-RW (VR mode).

Nothing was recorded even though you set the timer setting correctly.

- ➡ There was a power failure during recording.
- ➡ The recorder's internal clock stopped due to a power failure that lasted for more than 1 hour. (*See "Setting the Clock" in the separate booklet, "Hookups and Settings."*)
- ➡ The channel was disabled after the timer recording is set. (*See "Changing or disabling programme positions" in the separate booklet, "Hookups and Settings."*)
- ➡ Disconnect the mains from the wall outlet, and connect it again.
- ➡ "PDC/VPS Scan Off" was selected in the Tool menu (*page 26*).
- ➡ The programme contains copy protection signals that restricts copying.

Recording does not stop immediately after you press the ■ REC STOP button

- ➡ It will take a few seconds for the recorder to input disc data before recording can stop.

Recording does not stop after you press ■.

- ➡ Press ■ REC STOP.

Timer recording is not complete or did not start from the beginning.

- ➡ There was a power failure during recording. If the power recovers during the time a timer recording is set, the recorder resumes recording.
  Should the power failure continue for more than 1 hour, reset the clock. *(See "Setting the Clock" in the separate booklet, "Hookups and Settings.")*
- ➡ Other timer setting overlapped the timer setting (*page 27*).
- ➡ Disc space was not enough.
- ➡ The PDC/VPS function is working.

Contents previously recorded were erased.

- ➡ Data that has been recorded on a DVD with a PC will be erased from the disc when the disc is inserted.

The PDC/VPS function does not operate.

- ➡ Check that the clock and date are set correctly.
- ➡ Check that the VPS/PDC time you set is the correct one (there might be a mistake in the TV programme guide). If the broadcast you wanted to record did not send the good VPS/PDC information, the recorder will not start recording.
- ➡ If the reception is poor, the VPS/PDC signal might be altered and the recorder might not start recording.
- ➡ The "PDC/VPS Scan" function is set to "Off" (*page 26*).

Recording from the equipment with a timer

Nothing was recorded even though you set the Synchro-Rec setting correctly.

- ➡ You forgot to turn off the connected equipment. Turn off the connected equipment and set the recorder to Synchro-Rec standby mode.
- ➡ The recorder is connected to the TV output jack of the connected equipment.

Synchro-Recording does not complete.

- ➡ The timer setting for the connected equipment overlapped the recorder's timer setting *(page 32)*.
- ➡ There was a power failure during the recording.

The recorder automatically starts recording when the tuner is turned on.

- ➡ The Synchro-Rec function was activated. Turn off the tuner and cancel the Synchro-Rec function. *(See "Recording from External Equipment with a Timer (Synchro Rec)" on page 31.)*

Display

The clock has stopped.

- ➡ Set the clock again. *(See "Setting the Clock" in the separate booklet "Hookups and Settings.").*
- ➡ The clock stopped due to a power failure that lasted for more than 1 hour. Reset the clock. *(See "Setting the Clock" in the separate booklet "Hookups and Settings.").*

The TIMER REC indicator is flashing.

- ➡ The disc does not have enough space or there are more than 99 titles in the disc. Insert a recordable disc, and turn off the recorder.
- ➡ There is no recordable disc inside the recorder.

The recording mode indication is incorrect.

- ➡ If you make a recording that is less than three minutes long, the recording mode indication shown during playback may not match the recording mode you selected during recording. Note that the actual recording mode will always match the mode you selected, not the indication during playback.

Remote commander

The remote does not function.

- ➡ Batteries are weak. *(See the separate booklet, "Hookups and Settings.")*
- ➡ There are obstacles between the remote and the recorder.
- ➡ The remote is too far from the recorder.
- ➡ There are no batteries in the remote. *(See the separate booklet, "Hookups and Settings.")*
- ➡ The remote's manufacturer code returned to the default setting when you replaced the batteries. Reset the code. *(See "Controlling your TV or AV Amplifier (Receiver)" in the separate booklet, "Hookups and Settings)."*
- ➡ Turn on the recorder.
- ➡ The remote is not pointed at the remote sensor on the recorder.
- ➡ Different command modes are set for the recorder and remote. Set the same command mode. *(See "Preparing the Remote" in the separate booklet, "Hookups and Settings.")*
- ➡ The TV/DVD switch is set to TV. *(See "Controlling Your TV or AV Amplifier (Receiver)" in the separate booklet, "Hookups and Settings.")*

Other Sony equipment responds to the remote.

- ➡ The same command mode is set for both the equipment and recorder. Set a different command mode for the recorder. *(See the separate booklet, "Hookups and Settings.")*

Others

The recorder does not operate properly.

- ➡ When static electricity, etc., causes the recorder to operate abnormally, unplug the recorder and then plug it in again.

Nothing appears in the front panel display.

- ➡ "Dimmer" in Options Setup is set to "Off" (*page 82*).

Five numbers or letters are displayed on the front panel display.

- ➡ The self-diagnosis function was activated *(see the table on page 88*).

The disc tray does not open when you press the ⏏ (open/close) button.

- ➡ It may take a few seconds for the disc tray to open after you have recorded or edited a disc. This is because the recorder is adding disc data to the disc.

"RECOVERY" appears in the front panel display.

- ➡ The recorder's recovery function was activated when the recorder was turned on because the power was turned off or failed during recording. Leave the recorder on until "RECOVERY" disappears from the front panel display.

Self-diagnosis Function (When letters/numbers appear in the display)

When the self-diagnosis function is activated to prevent the recorder from malfunctioning, a five-character service number (e.g., C 13 50) with a combination of a letter and four numbers appears on the front panel display. In this case, check the following table.

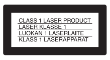
First three characters of the service number	Cause and/or corrective action
C 13	The disc is dirty. ➡ Clean the disc with a soft cloth (*page 3*).
C 31	The disc is not inserted correctly. ➡ Re-insert the disc correctly.
E XX (xx is a number)	To prevent a malfunction, the recorder has performed the self-diagnosis function. ➡ Contact your nearest Sony dealer or local authorized Sony service facility and give the five-character service number. Example: E 61 10

1-2. Hookups and Settings

This section is extracted from instruction manual. (RDR-GX7 : 3-081-196-11)

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.
Mains lead must only be changed at a qualified service shop.



This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION

The use of optical instruments with this product will increase eye hazard. As the laser beam used in this DVD recorder is harmful to eyes, do not attempt to disassemble the cabinet.
Refer servicing to qualified personnel only.

DANGER
ATTENTION
VORSICHT
ADVARSEL
ADVARSEL
VARNING
VARO!

This label is located on the laser protective housing inside the enclosure.

Notice for customers in the United Kingdom and Republic of Ireland

A moulded plug complying with BS1363 is fitted to this equipment for your safety and convenience.
Should the fuse in the plug supplied need to be replaced, a 5 AMP fuse approved by ASTA or BSI to BS1362, (i.e., marked with ⟐ or ♡ mark) must be used.
If the plug supplied with this equipment has a detachable fuse cover, be sure to attach the fuse cover after you change the fuse. Never use the plug without the fuse cover. If you should lose the fuse cover, please contact your nearest Sony service station.

Precautions

- This unit operates on 220 – 240 V AC, 50/60 Hz. Check that the unit's operating voltage is identical with your local power supply.
- To prevent fire or shock hazard, do not place objects filled with liquids, such as vases, on the apparatus.

VIDEO Plus+ and PlusCode are registered trademarks of Gemstar Development Corporation. The VIDEO Plus+ system is manufactured under license from Gemstar Development Corporation.

Precautions

This equipment has been tested and found to comply with the limits set out in the EMC Directive using a connection cable shorter than 3 metres.

On safety

Should any solid object or liquid fall into the cabinet, unplug the recorder and have it checked by qualified personnel before operating it any further.

On power sources

- The recorder is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the recorder itself has been turned off.
- If you are not going to use the recorder for a long time, be sure to disconnect the recorder from the wall outlet. To disconnect the AC power cord (mains lead), grasp the plug itself; never pull the cord.

On placement

- Place the recorder in a location with adequate ventilation to prevent heat build-up in the recorder.
- Do not place the recorder on a soft surface such as a rug that might block the ventilation holes.
- Do not place the recorder in a confined space such as a bookshelf or similar unit.
- Do not place the recorder in a location near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.
- Do not place the recorder in an inclined position. It is designed to be operated in a horizontal position only.
- Keep the recorder and discs away from equipment with strong magnets, such as microwave ovens, or large loudspeakers.
- Do not place heavy objects on the recorder.

On operation

- If the recorder is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the recorder. Should this occur, the recorder may not operate properly. In this case, remove the disc and leave the recorder turned on for about half an hour until the moisture evaporates.
- When you move the recorder, take out any discs. If you don't, the disc may be damaged.

On recording

- Contents of the recording cannot be compensated if the recording or playback is not made due to a malfunction of the recorder, disc, etc.
- Make trial recordings before taking the actual recording.

On adjusting volume

Do not turn up the volume while listening to a section with very low level inputs or no audio signals. If you do, the speakers may be damaged when a peak level section is played.

On cleaning

Clean the cabinet, panel, and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

On cleaning discs

Do not use a commercially available cleaning disc. It may cause a malfunction.

Copyrights

- Television programmes, films, video tapes, discs and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws. Also, use of this recorder with cable television transmission may require authorization from the cable television transmitter and/or programme owner.
- This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents, other intellectual property rights owned by Macrovision Corporation, and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Copy guard function

Since the recorder has a copy guard function, programmes received through an external tuner (not supplied) may contain copy protection signals (copy guard function) and as such may not be recordable, depending on the type of signal.

Music discs encoded with copyright protection technologies

This product is designed to playback discs that conform to the Compact Disc (CD) standard.
Recently, various music discs encoded with copyright protection technologies are marketed by some record companies. Please be aware that among those discs, there are some that do not conform to the CD standard and may not be playable by this product.

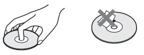
IMPORTANT NOTICE

Caution: This recorder is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave a still video image or on-screen display image displayed on your TV for an extended period of time, you risk permanent damage to your television screen. Plasma Display Panels and Projection televisions are especially susceptible to this.

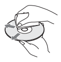
If you have any questions or problems concerning your recorder, please consult your nearest Sony dealer.

Notes about the Discs

- To keep the disc clean, handle the disc by its edge. Do not touch the surface. Dust, fingerprints, or scratches on the disc may cause it to malfunction.



- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as the temperature may rise considerably inside the car.
- After playing, store the disc in its case.
- Clean the disc with a cleaning cloth. Wipe the disc from the centre out.



- Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for vinyl LPs.
- Do not use the following discs.
  – A disc that has a non-standard shape (e.g., card, heart).
  – A disc with a label or sticker on it.
  – A disc that has cellophane tape or sticker adhesive on it.

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When you have finished with hookups and settings, refer to the Operating Instructions for further instructions. "Troubleshooting," "Specifications," and "Guide to Parts and Controls" can also be found in the Operating Instructions.

Basic Hookups and Settings

- Quick Overview . . . . *page 4*
- Step 1: Unpacking. . . . . *page 5*
- Step 2: Connecting the Aerial Cable . . . *page 5*
- Step 3: Connecting the Video Cords . . . *page 5*
- Step 4: Connecting the Audio Cords . . . *page 7*
- Step 5: Connecting the Mains Lead . . . . *page 10*
- Step 6: Preparing the Remote. . . . . . . *page 10*
- Step 7: Easy Setup . . . . *page 11*

Quick Overview

A quick overview presented in this guide will give you enough information to start using the recorder.

Step 1: Unpacking

↓

Step 2: Connecting the Aerial Cable

↓

Step 3: Connecting the Video Cords

↓

Step 4: Connecting the Audio Cords

↓

Step 5: Connecting the Mains Lead

↓

Step 6: Preparing the Remote

↓

Step 7: Easy Setup

Notes

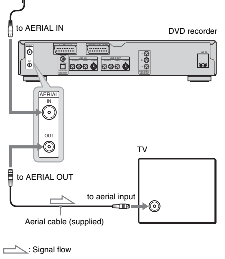
- You cannot connect this recorder to a TV that does not have a SCART (EURO AV) or video input jack.
- Be sure to disconnect the mains lead of each component before connecting.

Step 1: Unpacking

Check that you have the following items:
- Audio/video cord (pinplug × 3 ⟷ pinplug × 3) (1)
- Mains lead (1)
- Aerial cable (1)
- Remote commander (remote) (1)
- R6 (size AA) batteries (2)

Step 2: Connecting the Aerial Cable

Connect the aerial cable by following the steps below. Do not connect the mains lead until you reach *"Step 5: Connecting the Mains Lead" (page 10).*



1 **Disconnect the aerial cable from your TV and connect it to AERIAL IN on the rear panel of the recorder.**

2 **Connect AERIAL OUT of the recorder to the aerial input of your TV, using the supplied aerial cable.**

Step 3: Connecting the Video Cords

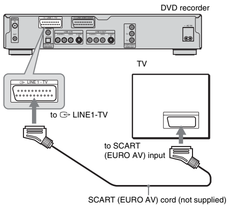
Connect this recorder to your TV monitor, projector, or AV amplifier (receiver) using a video cord. Select one of the following patterns Ⓐ through Ⓓ, according to the input jack on your TV monitor, projector, or AV amplifier (receiver). This will enable you to view pictures. Audio connections are explained in *"Step 4: Connecting the Audio Cords" (page 7).*

If you are connecting to a VCR or decoder

Connect your VCR to the LINE 3/DECODER jack on the recorder *(page 22).*

Ⓐ Connecting to a SCART (EURO AV) input jack

Connect using a SCART (EURO AV) cord (not supplied). Be sure to make the connections firmly to avoid hum and noise. Refer to the operating instructions supplied with the TV to be connected. Also, when you set "Line1 Output" to "S Video" or "RGB" in step 17 of Easy Setup *(page 13)*, use a SCART (EURO AV) cord that conforms to the selected signal.



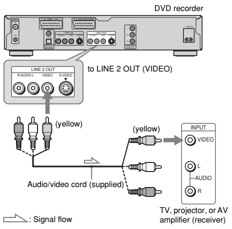
Notes

- When you connect the recorder to your TV via the SCART (EURO AV) jacks, the TV's input source is set to the recorder automatically when you start playback. If necessary, press TV/DVD on the remote to return the input to the TV.
- If you connect this recorder to a TV with SMARTLINK, set "Line1 Output" to "Video."
- For correct SMARTLINK connection, you will need a SCART (EURO AV) cord that has the full 21 pins (for example, Sony cord model name VMC-2121HG). Refer to your TV's instruction manual as well for this connection.

➡continued

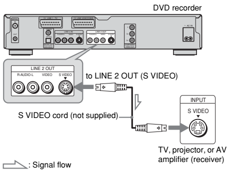
Ⓑ Connecting to a video input jack

Connect the yellow plug of the audio/video cord (supplied) to the yellow (video) jacks. You will enjoy standard quality images. Use the red and white plugs to connect to the audio input jacks *(page 8)*.


DVD recorder
LINE 2 OUT
R-AUDIO-L
VIDEO
S VIDEO
to LINE 2 OUT (VIDEO)
(yellow)
(yellow)
INPUT
VIDEO
L
AUDIO
R
Audio/video cord (supplied)
TV, projector, or AV amplifier (receiver)
: Signal flow

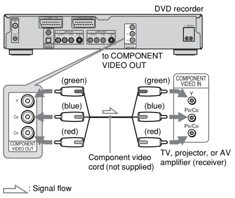
Ⓒ Connecting to an S VIDEO input jack

Connect using an S VIDEO cord (not supplied). You will enjoy high quality images.


DVD recorder
LINE 2 OUT
R-AUDIO-L
VIDEO
S VIDEO
to LINE 2 OUT (S VIDEO)
INPUT
S VIDEO
S VIDEO cord (not supplied)
TV, projector, or AV amplifier (receiver)
: Signal flow

Ⓓ Connecting to component video input jacks (Y, CB, CR)

Connect using a component video cord (not supplied) or three video cords (not supplied) of the same kind and length. You will enjoy accurate colour reproduction and high quality images.


DVD recorder
to COMPONENT VIDEO OUT
(green)
(blue)
(red)
(green)
(blue)
(red)
Y
CB
CR
COMPONENT VIDEO OUT
COMPONENT VIDEO IN
Y
PB/CB
PR/CR
Component video cord (not supplied)
TV, projector, or AV amplifier (receiver)
: Signal flow

About the SMARTLINK features

If the connected TV complies with SMARTLINK, NexTView Link, MEGALOGIC[1], EASYLINK[2], CINEMALINK[2], Q-Link[3], EURO VIEW LINK[4], or T-V LINK[5], this recorder automatically runs the SMARTLINK function after you complete the connection pattern Ⓐ on *page 5* (the SMARTLINK indicator lights up when you turn on your TV). You can enjoy the following SMARTLINK features.

- Preset Download
  You can download the tuner preset data from your TV to this recorder, and tune the recorder according to that data in Easy Setup. This greatly simplifies the Easy Setup procedure. Be careful not to disconnect the cables or exit the Easy Setup function during this procedure *(page 11)*.
- TV Direct Rec
  You can easily record what you are watching on your TV (*see "Recording TV programmes" in the separate booklet "Operating Instructions"*).
- One Touch Play
  You can turn on the recorder and TV, set the TV's input to the recorder, and start playback with one touch of the ▷ (play) button (*see "Playing Discs" in the separate booklet "Operating Instructions"*).
- One Touch Menu
  You can turn on the recorder and TV, set the TV to the recorder's channel, and display the Title List menu with one touch of the TITLE LIST button (*see "Selecting a Recorded Title on a Disc" in the separate booklet "Operating Instructions"*).
- One Touch Timer
  You can turn on the recorder and TV, set the TV to the recorder's channel, and display the timer programming menu with one touch of the TIMER button on the remote (*see "Timer Recording" in the separate booklet "Operating Instructions"*).
- Automatic Power Off
  The recorder will turn off automatically if the recorder is not used after you turn off the TV.
- NexTView Download
  You can easily set the timer by using the NexTView Download function on your TV. Refer to your TV's instruction manual.

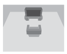
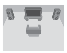
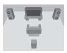
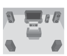
[1] "MEGALOGIC" is a registered trademark of Grundig Corporation.
[2] "EASYLINK" and "CINEMALINK" are trademarks of Philips Corporation.
[3] "Q-Link" is a trademark of Panasonic Corporation.
[4] "EURO VIEW LINK" is a trademark of Toshiba Corporation.
[5] "T-V LINK" is a trademark of JVC Corporation.

Hint
SMARTLINK also works with TVs having EPG Timer Control and Now Recording functions. For details, refer to the operating instructions supplied with your TV.

Notes
- SMARTLINK features are not available for devices connected via the DVD recorder's LINE 3/DECODER jack.
- Not all TVs respond to the functions above.

Step 4: Connecting the Audio Cords

Select the connection that best suits your system. Be sure to read the instructions for the components you wish to connect.

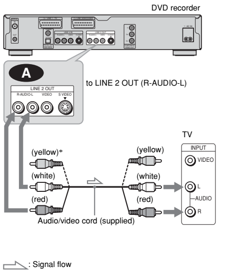
Connection	Your setup
Ⓐ **TV** • Surround effects: Dynamic, Wide	
Ⓑ **Stereo amplifier (receiver) and two speakers** • Surround effects: Standard **MD deck/DAT deck** • Surround effects: None	
Ⓒ **AV amplifier (receiver) having a Dolby Surround (Pro Logic) decoder[1] and 3 to 6 speakers** • Surround effects: Dolby Surround (Pro Logic)	
Ⓓ **AV amplifier (receiver) with a digital input jack having a Dolby Digital, MPEG audio, or DTS[2] decoder and 6 speakers** • Surround effects: Dolby Digital (5.1ch), DTS (5.1ch), MPEG audio	

[1] Manufactured under license from Dolby laboratories. "Dolby," "Pro Logic," and the double-D symbol are trademarks of Dolby Laboratories.
[2] "DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

➜continued

Ⓐ Connecting to your TV

This connection will use your TV's speakers for sound. If you use the SCART (EURO AV) cord in pattern Ⓐ of *"Step 3: Connecting the Video Cords" (page 5)*, you do not have to connect audio cords to your TV.


DVD recorder
A
LINE 2 OUT
R-AUDIO-L
VIDEO
S VIDEO
to LINE 2 OUT (R-AUDIO-L)
TV
(yellow)*
(white)
(red)
(yellow)
(white)
(red)
INPUT
VIDEO
L
AUDIO
R
Audio/video cord (supplied)
: Signal flow

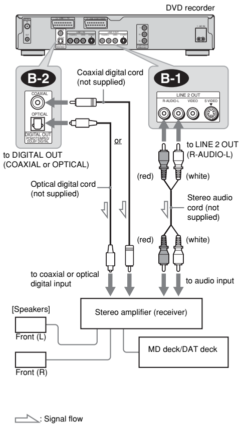
* The yellow plug is used for video signals *(page 6)*.

Hint
When connecting to a monaural TV, use a stereo-mono conversion cord (not supplied). Connect the LINE 2 OUT (R-AUDIO-L) jacks to the TV's audio input jack.

Note
Do not connect the LINE 4 IN (R-AUDIO-L) jacks to your TV's audio output jacks at the same time.

Ⓑ Connecting to a stereo amplifier (receiver) and 2 speakers/Connecting to an MD deck or DAT deck

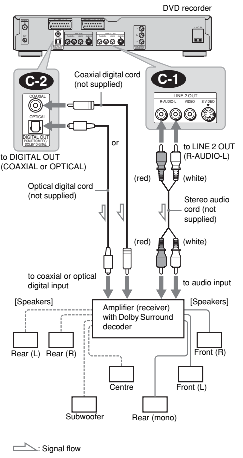
If your stereo amplifier (receiver) only has audio input jacks L and R, use B-1. If your amplifier (receiver) has a digital input jack, or when connecting to an MD deck or DAT deck, use B-2. In this case, you can also connect the recorder directly to the MD deck or DAT deck without using your stereo amplifier (receiver).


DVD recorder
B-2
COAXIAL
OPTICAL
DIGITAL OUT
PCM/DTS/MPEG/ DOLBY DIGITAL
Coaxial digital cord (not supplied)
B-1
LINE 2 OUT
R-AUDIO-L
VIDEO
S VIDEO
or
to DIGITAL OUT (COAXIAL or OPTICAL)
to LINE 2 OUT (R-AUDIO-L)
(red)
(white)
Optical digital cord (not supplied)
Stereo audio cord (not supplied)
(red)
(white)
to coaxial or optical digital input
to audio input
[Speakers]
Stereo amplifier (receiver)
Front (L)
MD deck/DAT deck
Front (R)
: Signal flow

Hint
For connection B-1, you can use the supplied audio/video cord instead of using a separate stereo audio cord.

Ⓒ Connecting to an AV amplifier (receiver) having a Dolby Surround (Pro Logic) decoder and 3 to 6 speakers

If your AV amplifier (receiver) only has L and R audio input jacks , use C-1. If your amplifier (receiver) has a digital input jack, use C-2.
You can enjoy Dolby Surround effects only when playing Dolby Surround audio or multi-channel audio (Dolby Digital) discs.

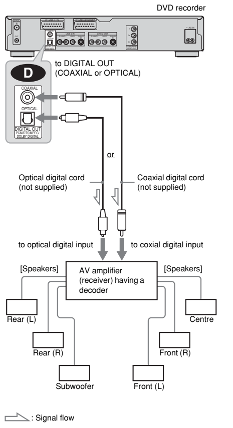

DVD recorder
C-2
COAXIAL
OPTICAL
DIGITAL OUT
PCM/DTS/MPEG/ DOLBY DIGITAL
Coaxial digital cord (not supplied)
C-1
LINE 2 OUT
R-AUDIO-L
VIDEO
S VIDEO
or
to DIGITAL OUT (COAXIAL or OPTICAL)
to LINE 2 OUT (R-AUDIO-L)
(red)
(white)
Optical digital cord (not supplied)
Stereo audio cord (not supplied)
(red)
(white)
to coaxial or optical digital input
to audio input
[Speakers]
Amplifier (receiver) with Dolby Surround decoder
[Speakers]
Rear (L)
Rear (R)
Front (R)
Centre
Front (L)
Subwoofer
Rear (mono)
: Signal flow

Hint
For correct speaker location, refer to the operating instructions of the connected components.

Note
When connecting 6 speakers, replace the monaural rear speaker with a centre speaker, 2 rear speakers, and a subwoofer.

Ⓓ Connecting to an AV amplifier (receiver) with a digital input jack and 6 speakers

If your AV amplifier (receiver) has a Dolby Digital, MPEG audio, or DTS decoder and a digital input jack, use this connection. Note that the surround sound effects of this recorder cannot be used with this connection.

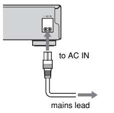

DVD recorder
D
COAXIAL
OPTICAL
DIGITAL OUT
PCM/DTS/MPEG/ DOLBY DIGITAL
to DIGITAL OUT (COAXIAL or OPTICAL)
or
Optical digital cord (not supplied)
Coaxial digital cord (not supplied)
to optical digital input
to coxial digital input
[Speakers]
AV amplifier (receiver) having a decoder
[Speakers]
Rear (L)
Centre
Rear (R)
Front (R)
Subwoofer
Front (L)
: Signal flow

Hint
For correct speaker location, refer to the operating instructions of the connected components.

Note
After you have completed the connection, be sure to set "Dolby Digital" to "Dolby Digital" and "DTS" to "On" under "Audio" in Easy Setup *(page 13)*. If your AV amplifier (receiver) has an MPEG audio decoder function, set "MPEG" in "Audio" to "MPEG" (*see "AUDIO Settings" in the separate booklet "Operating Instructions"*). Otherwise, no sound or a loud noise will come from your speakers.

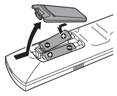
Step 5: Connecting the Mains Lead

Connect the supplied mains lead to the AC IN terminal of the recorder. Then plug the recorder and TV mains leads (power cords) into the mains. After you connect the mains lead, **you must wait for a short while before operating the recorder.** You can operate the recorder once the front panel display lights up and the recorder enters standby mode.


to AC IN
mains lead

Step 6: Preparing the Remote

You can control the recorder using the supplied remote. Insert two R6 (size AA) batteries by matching the ⊕ and ⊖ ends on the batteries to the markings inside the battery compartment. When using the remote, point it at the remote sensor on the recorder.

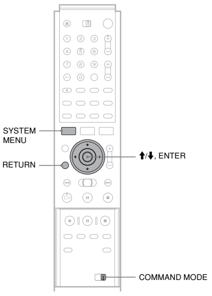


Notes

- Do not leave the remote in an extremely hot or humid place.
- Do not drop any foreign object into the remote casing, particularly when replacing the batteries.
- Do not expose the remote sensor to direct sunlight or a lighting apparatus. Doing so may cause a malfunction.
- If you do not use the remote for an extended period of time, remove the batteries to avoid possible damage from battery leakage and corrosion.

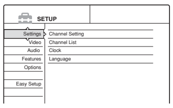
If you have a Sony DVD player or more than one Sony DVD recorder

If the supplied remote interferes with your other Sony DVD recorder or player, set the command mode number for this recorder and the supplied remote to one that differs from the other Sony DVD recorder or player.
The default command mode setting for this recorder and the supplied remote is DVD 3.

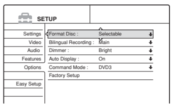

SYSTEM MENU
RETURN
↑/↓, ENTER
COMMAND MODE

1 **Press SYSTEM MENU.**
The System Menu appears.

2 **Press ↑/↓ to select "SETUP," then press ENTER.**

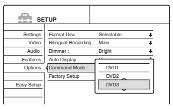

SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

3 **Press ↑/↓ to select "Options," then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup

Format Disc : Selectable
Bilingual Recording : Main
Dimmer : Bright
Auto Display : On
Command Mode : DVD3
Factory Setup

4 **Press ↑/↓ to select "Command Mode," then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Factory Setup
DVD1
DVD2
DVD3

Format Disc : Selectable
Bilingual Recording : Main
Dimmer : Bright
Auto Display :
Command Mode :

5 **Press ↑/↓ to select the Command mode (DVD1, DVD2, or DVD3), then press ENTER.**

6 **Slide the COMMAND MODE switch on the remote so it matches the mode you selected above.**

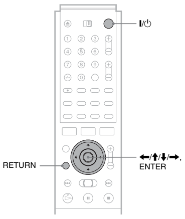
To return to the previous step

Press RETURN.

Step 7: Easy Setup

Follow the steps below to make the minimum number of basic adjustments for using the recorder. If you do not complete Easy Setup, it will appear each time you turn on your recorder.
You will make the settings below in the following order.

OSD Language Setup
↓
Tuner and Channel Setup
↓
Clock Setup
↓
TV Type Setup
↓
Video Connection Setup
↓
Audio Connection Setup


I/⏻
RETURN
←/↑/↓/→,
ENTER

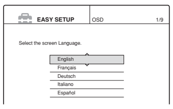
1 **Turn on the TV.**

2 **Press I/⏻.**

3 **Switch the input selector on your TV so that the signal from the recorder appears on your TV screen.**
"Initial settings necessary to operate the DVD recorder will be made. You can change them later using Setup." appears. If this message does not appear, select "Easy Setup" from "SETUP" in the System Menu to run Easy Setup. For details, *see "Settings and Adjustments" in the separate booklet "Operating Instructions."*

4 **Press ENTER.**
The Setup Display for selecting the language used in the on-screen display appears.

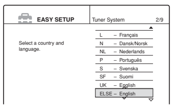
➡continued


EASY SETUP
OSD
1/9
English
Français
Deutsch
Italiano
Español

Select the screen Language.

5 **Press ↑/↓ to select a language.**

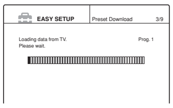
6 **Press ENTER.**
The setup Display for selecting your country and language for the tuner system appears. The programme order will be set according to the country or language you select.


EASY SETUP
Tuner System
2/9
L – Français
N – Dansk/Norsk
NL – Nederlands
P – Português
S – Svenska
SF – Suomi
UK – English
ELSE – English

Select a country and language.

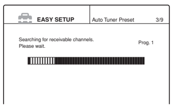
7 **Press ↑/↓ to select your country or language.**
If you live in a French speaking country that is not listed on the display, select "ELSE."

8 **Press ENTER.**
If the connected TV complies with SMARTLINK, the Preset Download function automatically starts *(page 6)*.


EASY SETUP
Preset Download
3/9
Prog. 1

Loading data from TV.
Please wait.

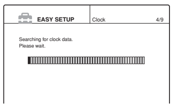
If the Preset Download function does not work, the Auto Tuner Preset function automatically starts searching for all of the receivable channels and presets them.


EASY SETUP
Auto Tuner Preset
3/9
Prog. 1

Searching for receivable channels.
Please wait.

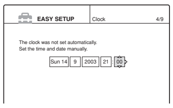
To set the channels manually, *see "Presetting channels manually" (page 16).*

9 **After the download or search is complete, the Clock function automatically starts.**


EASY SETUP
Clock
4/9

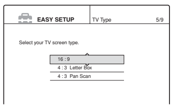
Searching for clock data.
Please wait.

If the current time or date is not set, "The clock was not set automatically. Set the time and date manually." appears. Set the clock manually using ←/↑/↓/→, and then press ENTER.


EASY SETUP
Clock
4/9

The clock was not set automatically.
Set the time and date manually.
Sun 14 9 2003 21 : 00

10 **Once the clock signal is received, the Setup Display for selecting the aspect ratio of the connected TV appears.**


EASY SETUP
TV Type
5/9
16 : 9
4 : 3 Letter Box
4 : 3 Pan Scan

Select your TV screen type.

11 **Press ↑/↓ to select the setting that matches your TV type.**

◆ **If you have a wide-screen TV or a 4:3 standard TV with a wide-screen mode**
- 16:9

◆ **If you have a 4:3 standard TV**
- 4:3 Letter Box
  Displays a wide picture with bands on the upper and lower sections of the screen.
- 4:3 Pan Scan
  Automatically displays a wide picture on the entire screen and cuts off the sections that do not fit.

For details, *see "VIDEO Settings" in the separate booklet "Operating Instructions."*

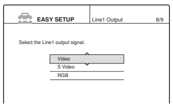
12 **Press ENTER.**
The Setup Display for the Component Out jacks appears.

13 **Press ↑/↓ to select an option.**
Select "On" if you are using the COMPONENT VIDEO OUT jacks, or select "Off" if you are not using the COMPONENT VIDEO OUT jacks.

14 **Press ENTER.**
The Setup Display for connecting to the LINE 3/DECODER jack appears.

15 **Press ↑/↓ to select an option.**
Select "Yes" if you will connect a decoder to the LINE 3/DECODER jack, or select "No" if you will not connect a decoder.

16 **Press ENTER.**
The Setup Display for selecting the type of video signal output from the LINE1-TV jack appears.


EASY SETUP
Line1 Output
8/9
Video
S Video
RGB

Select the Line1 output signal.

17 **Press ↑/↓ to select the type of signal you want to output from the LINE1-TV jack.**
Note that if you select "On" in step 13, you cannot select "RGB," and that if you select "Yes" in step 15, you cannot select "S Video."

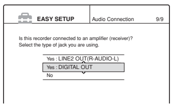
◆ **To output Video signals**
- Video

◆ **To output S video signals**
- S Video

◆ **To output RGB signals**
- RGB

If you select "S Video" or "RGB," SMARTLINK will be deactivated.

18 **Press ENTER.**
The Setup Display for selecting the type of jack used to connect to your amplifier (receiver) appears.


EASY SETUP
Audio Connection
9/9
Yes : LINE2 OUT(R-AUDIO-L)
Yes : DIGITAL OUT
No

Is this recorder connected to an amplifier (receiver)?
Select the type of jack you are using.

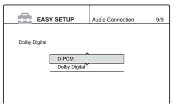
19 **Press ↑/↓ to select the type of jack (if any) you are using to connect to an amplifier (receiver), then press ENTER.**
Choose the item that matches the audio connection you selected on *pages 8 to 9* (A through D).

A
- If you connect just a TV and nothing else, select "No," then go to step 23.

B-1 C-1
- Select "Yes: LINE 2 OUT (R-AUDIO-L)," then go to step 23.

B-2 C-2 D
- Select "Yes: DIGITAL OUT." The Setup Display for "Dolby Digital" appears.

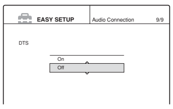
20 **Press ↑/↓ to select the type of Dolby Digital signal you wish to send to your amplifier (receiver).**
Choose the signal that matches the audio connection you selected on *pages 8 to 9* (B through D).


EASY SETUP
Audio Connection
9/9
Dolby Digital
D-PCM
Dolby Digital

B-2 C-2
- D-PCM

D
- Dolby Digital (only if the amplifier (receiver) has a Dolby Digital decoder)

21 **Press ENTER.**
The Setup Display for selecting the type of DTS signal appears.

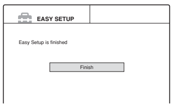

EASY SETUP
Audio Connection
9/9
DTS
On
Off

22 **Press ↑/↓ to select the type of DTS signal you wish to send to your amplifier (receiver) and press ENTER.**
Choose the item that matches the audio connection you selected on *pages 8 to 9* (B through D).

B-2 C-2
- Off

D
- On (only if the amplifier (receiver) has a DTS decoder)

23 **Press ENTER when "Finish" appears.**
Easy Setup is finished. All connections and setup operations are complete.


EASY SETUP
Finish

Easy Setup is finished

To return to the previous step

Press RETURN.

Hints

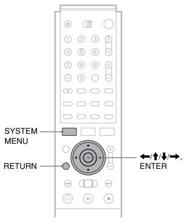
- If your AV amplifier (receiver) has an MPEG audio decoder, set "MPEG" to "MPEG" (*see "AUDIO Settings" in the separate booklet "Operating Instructions"*).
- If you want to run Easy Setup again, select "Easy Setup" from "Setup" in the System Menu.

Advanced Hookups and Settings

- Setting the Clock. . . . . *page 14*
- Presetting Channels . . . . *page 16*
- Changing/Disabling the Channels . . . . *page 19*
- Controlling Your TV or AV Amplifier (Receiver) . . . . *page 21*
- Connecting a VCR or Similar Recording Device to the LINE3 Jack . . . . *page 22*
- Connecting to a Satellite or Digital Tuner . . . . *page 23*
- Connecting a PAY-TV/Canal Plus Decoder . . . . *page 24*

Setting the Clock

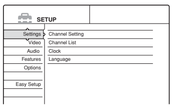
You must set the time and date on the recorder to use the timer features properly.
The Auto Clock Set function works only if a station in your area is broadcasting a time signal. If the Auto Clock Set function did not set the clock correctly for your local area, try another station for the Auto Clock Set function or set the clock manually.


SYSTEM MENU
RETURN
←/↑/↓/→, ENTER

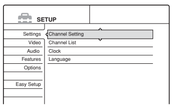
Changing the station for the Auto Clock Set function

1 **Press SYSTEM MENU.**
The System Menu appears.

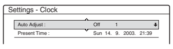
2 **Press ↑/↓ to select “SETUP,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

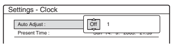
3 **Press ↑/↓ to select “Settings,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

4 **Press ↑/↓ to select “Clock,” then press ENTER.**

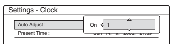

Settings - Clock
Auto Adjust : Off 1
Present Time : Sun 14. 9. 2003. 21:39

5 **Press ↑/↓ to select “Auto Adjust,” then press ENTER.**


Settings - Clock
Auto Adjust :
Off 1
Present Time :

6 **Press ↑/↓ to select “On,” then press ENTER.**

7 **Press ↑/↓ repeatedly until the programme position of the station that carries a time signal appears, then press ENTER.**


Settings - Clock
Auto Adjust :
On 1
Present Time :

If the recorder does not receive a time signal from any station, “Auto Adjust” returns to “Off” automatically and the menu for setting the clock manually appears on the screen.

8 **Press SYSTEM MENU repeatedly to exit the menu.**

To return to the previous step

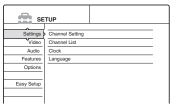
Press RETURN.

Hint
If you set “Auto Adjust” to “On,” the Auto Clock Set function is activated whenever the recorder is turned off. The time is adjusted automatically by receiving the time signal from the station displayed in the “Auto Adjust” row.

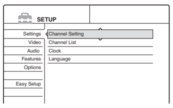
Setting the clock manually

1 **Press SYSTEM MENU.**
The System Menu appears.

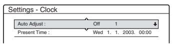
2 **Press ↑/↓ to select “SETUP,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

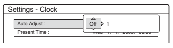
3 **Press ↑/↓ to select “Settings,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

4 **Press ↑/↓ to select “Clock,” then press ENTER.**

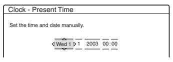

Settings - Clock
Auto Adjust : Off 1
Present Time : Wed 1. 1. 2003. 00:00

5 **Press ↑/↓ to select “Auto Adjust,” then press ENTER.**


Settings - Clock
Auto Adjust :
Off 1
Present Time :

6 **Press ↑/↓ to select “Off,” then press ENTER.**

7 **Press ↑/↓ to select “Present Time,” then press ENTER.**


Clock - Present Time
Set the time and date manually.
Wed 1 1 2003 00:00

8 **Press ↑/↓ to set the day, then press →.**
Set the month, year, hour, and minutes in sequence. Press ←/→ to select the item to be set, then press ↑/↓ to set the numbers. The day of the week is set automatically.

9 **Press ENTER to start the clock.**

→continued

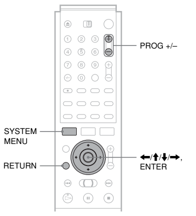
10 **Press SYSTEM MENU repeatedly to exit the menu.**

To return to the previous step

Press RETURN.

Hint
To change the numbers in step 8, press ← to return to the item to be changed, and select the numbers by pressing ↑/↓.

Presetting Channels

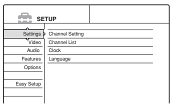

PROG +/–
SYSTEM MENU
RETURN
←/↑/↓/→, ENTER

Presetting channels manually

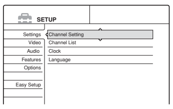
If some channels could not be set using the Easy Setup function, you can set them manually.
If there is no sound or if the picture is distorted, the wrong tuner system may have been preset during Easy Setup. Set the correct tuner system manually in the steps below.

1 **Press SYSTEM MENU.**
The System Menu appears.

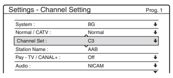
2 **Press ↑/↓ to select “SETUP,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

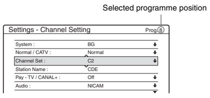
3 **Press ↑/↓ to select “Settings,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

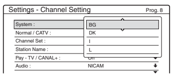
4 **Press ↑/↓ to select “Channel Setting,” then press ENTER.**


Settings - Channel Setting
Prog. 1
System : BG
Normal / CATV : Normal
Channel Set : C3
Station Name : AAB
Pay - TV / CANAL+ : Off
Audio : NICAM

5 **Press PROG +/– to select the programme position.**

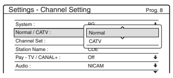

Selected programme position
Settings - Channel Setting
Prog. 8
System : BG
Normal / CATV : Normal
Channel Set : C2
Station Name : CDE
Pay - TV / CANAL+ : Off
Audio : NICAM

6 **Press ↑/↓ to select “System,” then press ENTER.**


Settings - Channel Setting
Prog. 8
System :
Normal / CATV :
Channel Set :
Station Name :
Pay - TV / CANAL+ :
Audio : NICAM
BG
DK
I
L

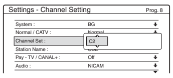
7 **Press ↑/↓ to select an available TV system, BG, DK, L, or I, then press ENTER.**

8 **Press ↑/↓ to select “Normal/CATV,” then press ENTER.**


Settings - Channel Setting
Prog. 8
System :
Normal / CATV :
Channel Set :
Station Name :
Pay - TV / CANAL+ : Off
Audio : NICAM
Normal
CATV

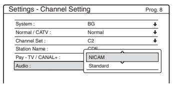
9 **Press ↑/↓ to select “Normal,” then press ENTER.**
To set CATV (Cable Television) channels, select “CATV.”

10 **Press ↑/↓ to select “Channel Set,” then press ENTER.**


Settings - Channel Setting
Prog. 8
System : BG
Normal / CATV :
Channel Set :
C2
Station Name :
Pay - TV / CANAL+ : Off
Audio : NICAM

11 **Press ↑/↓ repeatedly until the channel you want is displayed.**
The channels are scanned in the order shown in the table below.
If you know the number of the channel you want, press the number buttons. For example, for channel 5, first press “0” and then press “5.”

12 **Press ↑/↓ to select “Audio,” then press ENTER.**


Settings - Channel Setting
Prog. 8
System : BG
Normal / CATV : Normal
Channel Set : C2
Station Name :
Pay - TV / CANAL+ :
Audio :
NICAM
Standard

13 **Press ↑/↓ to select “NICAM,” then press ENTER.**

14 **To set another programme position, repeat steps 5 through 13.**

15 **Press SYSTEM MENU repeatedly to exit the menu.**

Receivable Channels

TV system	Channel coverage
BG (West European Countries, except those listed below)	E2 - E12 VHF
	Italia A – H VHF
	E21 – E69 UHF
	S1 – S20 CATV
	S21 – S41 HYPER
	S01 – S05 CATV
DK (East European Countries)	R1 – R12 VHF
	E21 – E69 UHF
	S1 – S20 CATV
	S21 – S41 HYPER
	S01 – S05 CATV
L (France)	F2 – F10 VHF
	F21 – F69 UHF
	B – Q CATV
	S21 – S41 HYPER
I (Great Britain/Ireland)	Ireland A – J VHF
	South Africa 4 – 13 VHF
	B21 – B69 UHF
	S1 – S20 CATV
	S21 – S41 HYPER
	S01 – S05 CATV

To return to the previous step

Press RETURN.

Hint
If the sound is not clear when listening to NICAM broadcasts, set “Audio” of “Channel Setting” in “Settings” to “Standard.”

→continued

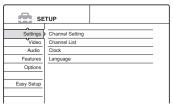
If the picture is not clear

If the Auto Fine Tuning (AFT) function does not effectively tune the picture of a certain station, you will need to adjust the pictures manually.

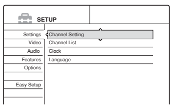
1. **Press PROG +/– or the number buttons to select the programme position for which you cannot obtain a clear picture.**

2. **Press SYSTEM MENU.**
   The System Menu appears.

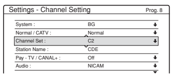
3. **Press ↑/↓ to select “SETUP,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

4. **Press ↑/↓ to select “Settings,” then press ENTER.**

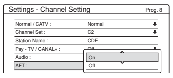

SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

5. **Press ↑/↓ to select “Channel Setting,” then press ENTER.**


Settings - Channel Setting Prog. 8

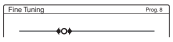
System : BG
Normal / CATV : Normal
Channel Set : C2
Station Name : CDE
Pay - TV / CANAL+ : Off
Audio : NICAM

6. **Press ↑/↓ to select “AFT,” then press ENTER.**


Settings - Channel Setting Prog. 8

Normal / CATV : Normal
Channel Set : C2
Station Name : CDE
Pay - TV / CANAL+ : Off
Audio :
AFT :

7. **Press ↑/↓ to select “Off,” then press ENTER.**
   The fine tuning bar appears.


Fine Tuning
Prog. 8

8. **Press ←/→ to get a clearer picture, then press ENTER.**

9. **Press SYSTEM MENU repeatedly to exit the menu.**

To return to the previous step

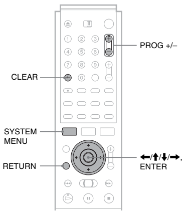
Press RETURN.

Note

While adjusting the picture, the display may become difficult to read due to interference from the picture being received.

Changing/Disabling the Channels

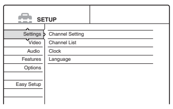
After setting the channels, you can change the programme positions. If any programme positions are unused or contain unwanted channels, you can disable them.
You can also change the station names. If the station names are not displayed, you can enter them manually.


PROG +/–
CLEAR
SYSTEM MENU
RETURN
←/↑/↓/→, ENTER

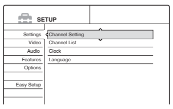
Changing or disabling programme positions

1. **Press SYSTEM MENU.**
   The System Menu appears.

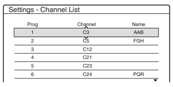
2. **Press ↑/↓ to select “SETUP,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

3. **Press ↑/↓ to select “Settings,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

4. **Press ↑/↓ to select “Channel List,” then press ENTER.**

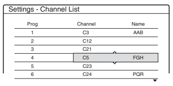

Settings - Channel List

Prog	Channel	Name
1	C3	AAB
2	C5	FGH
3	C12	
4	C21	
5	C23	
6	C24	PQR

5. **Press ↑/↓ to select the row containing the programme position you want to change or disable.**
   - ◆ **To change**
     Press ENTER and go to step 6.
   - ◆ **To disable**
     Press CLEAR and go to step 8. The disabled positions will be skipped when you press the PROG +/– buttons.

   To display other pages for programme positions 7 to 99, press ↑/↓ repeatedly.

6. **Press ↑/↓ until the selected channel row moves to the desired programme position.**
   The selected channel is inserted at the new programme position.


Settings - Channel List

Prog	Channel	Name
1	C3	AAB
2	C12	
3	C21	
4	C5	FGH
5	C23	
6	C24	PQR

7. **Press ENTER to confirm the setting.**

8. **To change or disable the programme position of another station, repeat steps 5 through 8.**

9. **Press SYSTEM MENU repeatedly to exit the menu.**

To return to the previous step

Press RETURN.

Note

Be sure to select the programme position you want to disable correctly. If you disable a programme position by mistake, you need to reset that channel manually *(page 16)*.

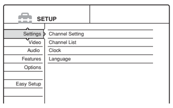
➡continued

Changing the station names

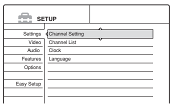
You can change or enter a station name (up to 5 characters). The recorder must receive channel information (for instance, SMARTLINK information) for station names to appear automatically.

1. **Press SYSTEM MENU.**
   The System Menu appears.

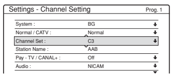
2. **Press ↑/↓ to select “SETUP,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

3. **Press ↑/↓ to select “Settings,” then press ENTER.**


SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

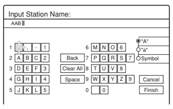
4. **Press ↑/↓ to select “Channel Setting,” then press ENTER.**


Settings - Channel Setting Prog. 1

System : BG
Normal / CATV : Normal
Channel Set : C3
Station Name : AAB
Pay - TV / CANAL+ : Off
Audio : NICAM

5. **Press PROG +/– to select the programme position for which you want to change or enter a station name.**

6. **Press ↑/↓ to select “Station Name,” then press ENTER.**
   The display for entering characters appears.


Input Station Name:
AAB
1 . , - 1
2 A B C 2
3 D E F 3
4 G H I 4
5 J K L 5
Back
Clear All
Space
6 M N O 6
7 P Q R S 7
8 T U V 8
9 W X Y Z 9
0 0
"A"
"a"
Symbol
Cancel
Finish

- ◆ **To enter a character**

① **Press ←/↑/↓/→ to select the type of character, “A”(upper case), “a”(lower case), or “Symbol,” then press ENTER.**

② **Press ←/↑/↓/→ to select the character you want to enter, then press ENTER.**
The selected character appears at the top of the display.

③ **Repeat steps ① and ② to enter all of the characters for the station name.**

- ◆ **To erase a character**

① **Press ←/↑/↓/→ to move the cursor to the input row.**

② **Press ←/→ to move the cursor to the right of the character you want to erase.**

③ **Press ←/↑/↓/→ to select “Back,” then press ENTER.**

- ◆ **To insert a character**

① **Press ←/↑/↓/→ to move the cursor to the input row.**

② **Press ←/↑/↓/→ to move the cursor to the right of the point where you want to insert a character.**

③ **Press ←/↑/↓/→ to select the character you want to insert, then press ENTER.**

- ◆ **To erase all of the characters**
  Press ←/↑/↓/→ to select “Clear All,” then press ENTER.

For details, *see “Guide to Displays” in the separate booklet “Operating Instructions”*.

7. **Press ←/↑/↓/→ to select “Finish,” then press ENTER.**

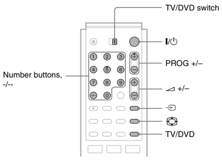
8. **Press SYSTEM MENU repeatedly to exit the menu.**

To return to the previous step

Press RETURN.

Controlling Your TV or AV Amplifier (Receiver)

You can control your TV with the supplied remote by adjusting the remote control’s signal.
If you connected the recorder to an AV amplifier (receiver), you can also control the volume with the supplied remote.


TV/DVD switch
I/⏻
PROG +/–
Number buttons, -/--
◿ +/–
TV/DVD

Notes

- Depending on the connected unit, you may not be able to control your TV or AV amplifier (receiver) with some of the buttons below.
- If you enter a new code number, the code number previously entered will be erased.
- When you replace the batteries of the remote, the code number may be reset to the default setting. Set the appropriate code number again.

Controlling TVs with the remote

1. **Slide the TV/DVD switch to TV.**

2. **Hold down I/⏻.**

3. **Enter your TV’s manufacturer code (see “Code numbers of controllable TVs” below) using the number buttons.**

4. **Release I/⏻.**
   When the TV/DVD switch is set to TV, the remote performs the following:

I/⏻	Turns your TV on or off
◿ (volume) +/–	Adjusts the volume of your TV
(wide mode)	Switches to or from the wide mode of a wide-screen TV
(TV/video)	Switches your TV’s input source
PROG +/–, Number buttons, -/--*	Selects the programme position on your TV

* If you use number buttons to select the TV’s programme position, press -/-- followed by the number buttons for two-digit numbers.

To operate the TV/DVD button

The TV/DVD button switches between the recorder and the last input source selected on the TV. Point your remote at the recorder when using this button. The button works even if the TV/DVD switch is set to DVD.
If you connect the recorder to the TV via the SCART (EURO AV) jacks, the input source for the TV is set to the recorder automatically when you start playback. To watch another source, press the TV/DVD button to switch the TV’s input source.

Code numbers of controllable TVs

If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

Manufacturer	Code number
Sony (default)	01
Aiwa	01
Grundig	11
Hitachi	24
Loewe	08, 45
Nokia	15, 16, 69
Panasonic	17, 49
Philips	06, 07, 08
Saba	12, 13
Samsung	06, 22, 23
Sanyo	25
Sharp	29
Telefunken	36
Thomson	43
Toshiba	38

➡continued

Controlling the volume of your AV amplifier (receiver) with the remote

1. **Slide the TV/DVD switch to DVD.**

2. **Hold down I/⏻, and enter the manufacturer code (see the table below) for your AV amplifier (receiver) using the number buttons.**

3. **Release I/⏻.**
   The ◿ (volume) +/– buttons control the AV amplifier's volume.

   ◆ **If you want to control the TV's volume**
   Slide the TV/DVD switch to TV.

Hint
If you want to control the TV's volume even when the TV/DVD switch is set to DVD, repeat the steps above and enter the code number 90 (default).

Code numbers of controllable AV amplifiers (receivers)

If more than one code number is listed, try entering them one at a time until you find the one that works with your AV amplifier (receiver).

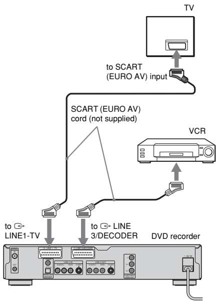
Manufacturer	Code number
Sony	80, 88, 89, 91
Denon	84, 85, 86
Kenwood	92, 93
Onkyo	81, 82, 83
Pioneer	99
Sansui	87
Technics	97, 98
Yamaha	94, 95, 96

Connecting a VCR or Similar Recording Device to the LINE3 Jack

You can use this recorder as the source player or as the recording deck. *See "Recording From Equipment Connected to the LINE IN Jacks" in the separate booklet "Operating Instructions"* when connecting to the LINE 2 IN or LINE 4 IN jacks. Disconnect the recorder's mains lead from the mains when connecting the VCR or recording device.

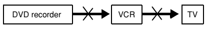
How to connect to record

Connect a VCR or similar recording device to the LINE 3/DECODER jack of this recorder. Then press INPUT SELECT to select "L3." You are ready to start recording.
If you are using this recorder as the recording deck, *see "Recording from Equipment Connected to the LINE IN jacks" in the separate booklet "Operating Instructions."*
If you are using this recorder as the source player, refer to the instructions of the connected device for recording instructions.



Hint
If you are using another recorder with S VIDEO and AUDIO IN/OUT jacks, you can connect those jacks to this recorder's S VIDEO and R-AUDIO-L IN/OUT jacks.

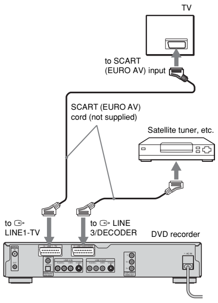
Notes
- If you pass the recorder signals via the VCR, you may not receive a clear image on the TV screen.



- SMARTLINK features are not available for devices connected via the DVD recorder's LINE 3/DECODER jack.
- Pictures containing copy protection signals that prohibit any copying cannot be recorded.
- When you record to a VCR from this DVD recorder, do not switch the input source to TV by pressing the TV/DVD button on the remote.
- If you disconnect the recorder's AC power cord, you will not be able to view the signals from the connected VCR.

Connecting to a Satellite or Digital Tuner

Connect a satellite or digital tuner to this recorder using the LINE 3/DECODER jack. Disconnect the recorder's mains lead from the mains when connecting the tuner.



If the satellite tuner can output RGB signals

This recorder accepts RGB signals. If the satellite tuner can output RGB signals, connect the TV SCART connector on the satellite tuner to the LINE 3/DECODER jack, and set "Line3 Input" of "Scart Setting" to "Video/RGB." *see "VIDEO Settings" in the separate booklet "Operating Instructions."* Note that this connection and setup disables the SMARTLINK function.

If you want to use the Synchro Rec function

This connection is necessary to use the Synchronized Recording function. *see "Recording from External Equipment with a Timer (Synchro Rec)" in the separate booklet "Operating Instructions."*
Set "Line3 Input" of "Scart Setting" according to the specifications of your satellite tuner. Refer to your satellite tuner's instructions for more information.

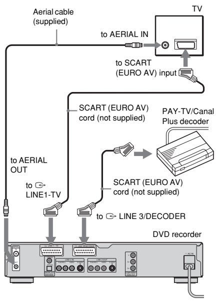
◆If you are using a B Sky B tuner
Be sure to connect the tuner's VCR SCART jack to the LINE 3/DECODER jack. Then set "Line3 Input" of "Scart Setting" according to the specifications of the VCR SCART jack on your satellite tuner.

Notes
- Do not set "Line3 Input" of "Scart Setting" in "Video" to "Decoder."
- Synchronized Recording does not work with some tuners. For details, refer to the tuner's operating instructions.
- If you disconnect the recorder's mains lead, you will not be able to view the signals from the connected tuner.

Connecting a PAY-TV/Canal Plus Decoder

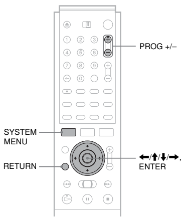
You can watch or record PAY-TV/Canal Plus programmes if you connect a decoder (not supplied) to the recorder. Disconnect the recorder's mains lead from the mains when connecting the decoder.

Connecting a decoder



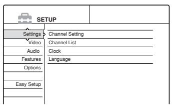
Setting PAY-TV/Canal Plus channels

To watch or record PAY-TV/Canal Plus programmes, set your recorder to receive the channels using the on-screen display.
In order to set the channels correctly, be sure to follow all of the steps below.



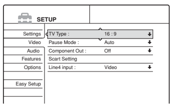
1. **Press SYSTEM MENU.**
   The System Menu appears.

2. **Press ↑/↓ to select "SETUP," then press ENTER.**



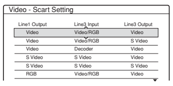
SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

3. **Press ↑/↓ to select "Video," then press ENTER.**



SETUP
TV Type : 16 : 9
Pause Mode : Auto
Component Out : Off
Scart Setting
Line4 input : Video

4. **Press ↑/↓ to select "Scart Setting," then press ENTER.**



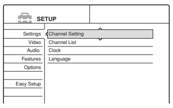
Video - Scart Setting

Line1 Output	Line3 Input	Line3 Output
Video	Video/RGB	Video
Video	Video/RGB	S Video
Video	Decoder	Video
S Video	S Video	Video
S Video	S Video	S Video
RGB	Video/RGB	Video

5. **Press ↑/↓ to select "Video" or "RGB" for "Line1 Output," "Decoder" for "Line3 Input" and "Video" for "Line3 Output," then press ENTER.**
   Video Setup appears again.

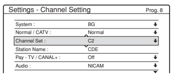
6. **Press RETURN to return the cursor to the left column.**

7. **Press ↑/↓ to select "Settings," then press ENTER.**



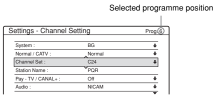
SETUP
Settings
Video
Audio
Features
Options
Easy Setup
Channel Setting
Channel List
Clock
Language

8. **Press ↑/↓ to select "Channel Setting," then press ENTER.**



Settings - Channel Setting Prog. 8
System : BG
Normal / CATV : Normal
Channel Set : C2
Station Name : CDE
Pay - TV / CANAL+ : Off
Audio : NICAM

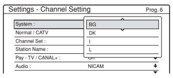
9. **Press PROG +/– to select the desired programme position.**



Settings - Channel Setting Prog. 6
System : BG
Normal / CATV : Normal
Channel Set : C24
Station Name : PQR
Pay - TV / CANAL+ : Off
Audio : NICAM

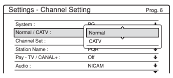
10. **Press ↑/↓ to select "System," then press ENTER.**

11. **Press ↑/↓ to select an available TV system, BG, DK, L, or I, then press ENTER.**
    To receive broadcasts in France, select L.



Settings - Channel Setting Prog. 6
System :
BG
DK
I
L
Normal / CATV
Channel Set :
Station Name :
Pay - TV / CANAL+ :
Audio : NICAM

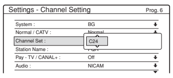
12. **Press ↑/↓ to select "Normal/CATV," then press ENTER.**



Settings - Channel Setting Prog. 6
System :
Normal / CATV :
Normal
CATV
Channel Set :
Station Name :
Pay - TV / CANAL+ : Off
Audio : NICAM

13. **Press ↑/↓ to select "Normal," then press ENTER.**
    To preset CATV (Cable Television) channels, select "CATV."

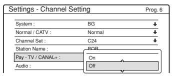
14. **Press ↑/↓ to select "Channel Set," then press ENTER.**



Settings - Channel Setting Prog. 6
System : BG
Normal / CATV :
Channel Set : C24
Station Name :
Pay - TV / CANAL+ : Off
Audio : NICAM

15. **Press ↑/↓ to select the PAY-TV/Canal Plus channel, then press ENTER.**

16. **Press ↑/↓ to select "PAY-TV/CANAL+," then press ENTER.**



Settings - Channel Setting Prog. 6
System : BG
Normal / CATV : Normal
Channel Set : C24
Station Name :
Pay - TV / CANAL+ :
On
Off
Audio :

17. **Press ↑/↓ to select "On," then press ENTER.**

18. **Press SYSTEM MENU repeatedly to exit the menu.**

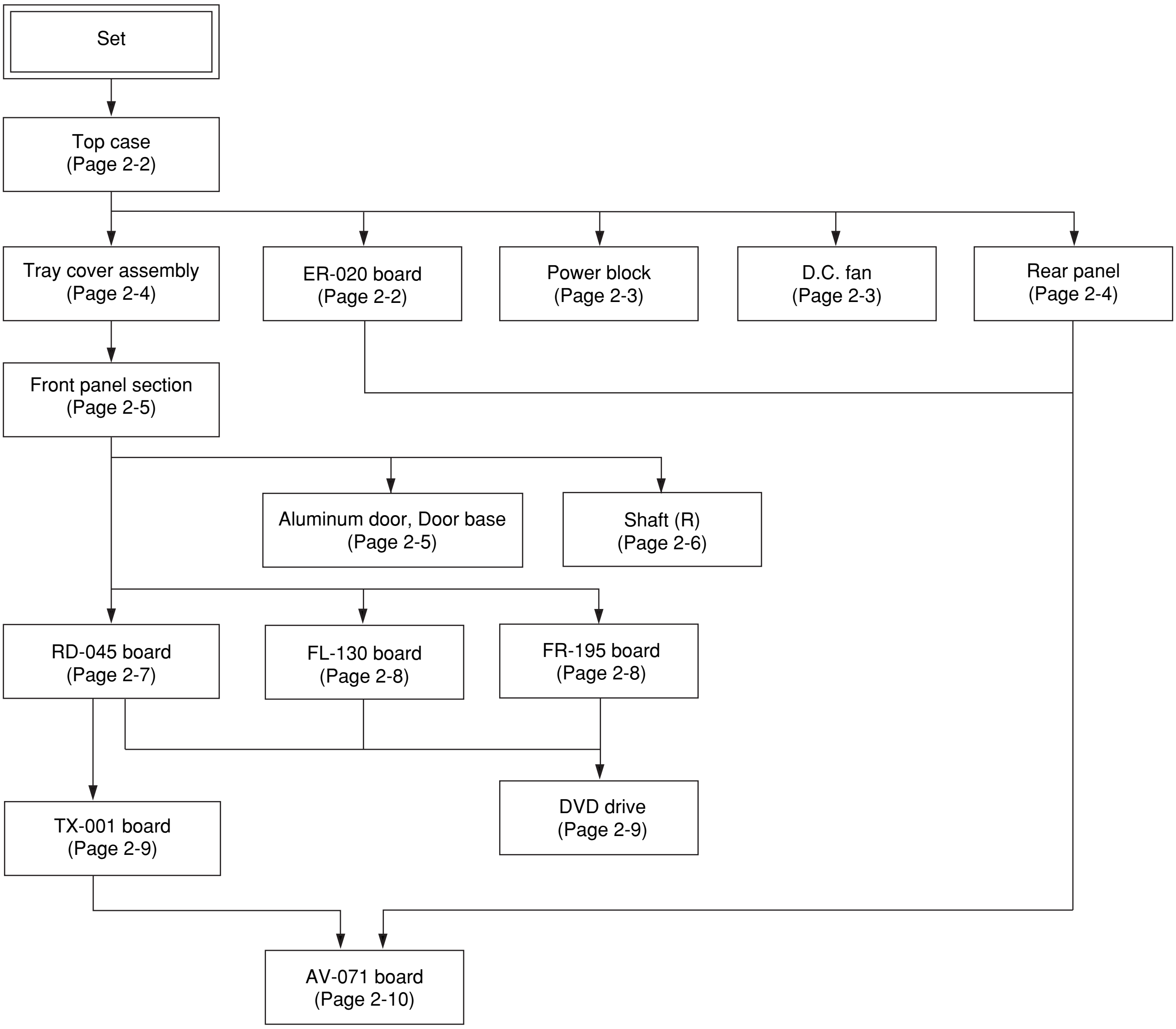
To return to the previous step

Press RETURN.

Notes
- When you set "Line3 Input" to "Decoder" in step 5 above, you will not be able to select "L3" because Line 3 will become a dedicated line for the decoder.
- If you disconnect the recorder's mains lead, you will not be able to view the signals from the connected decoder.

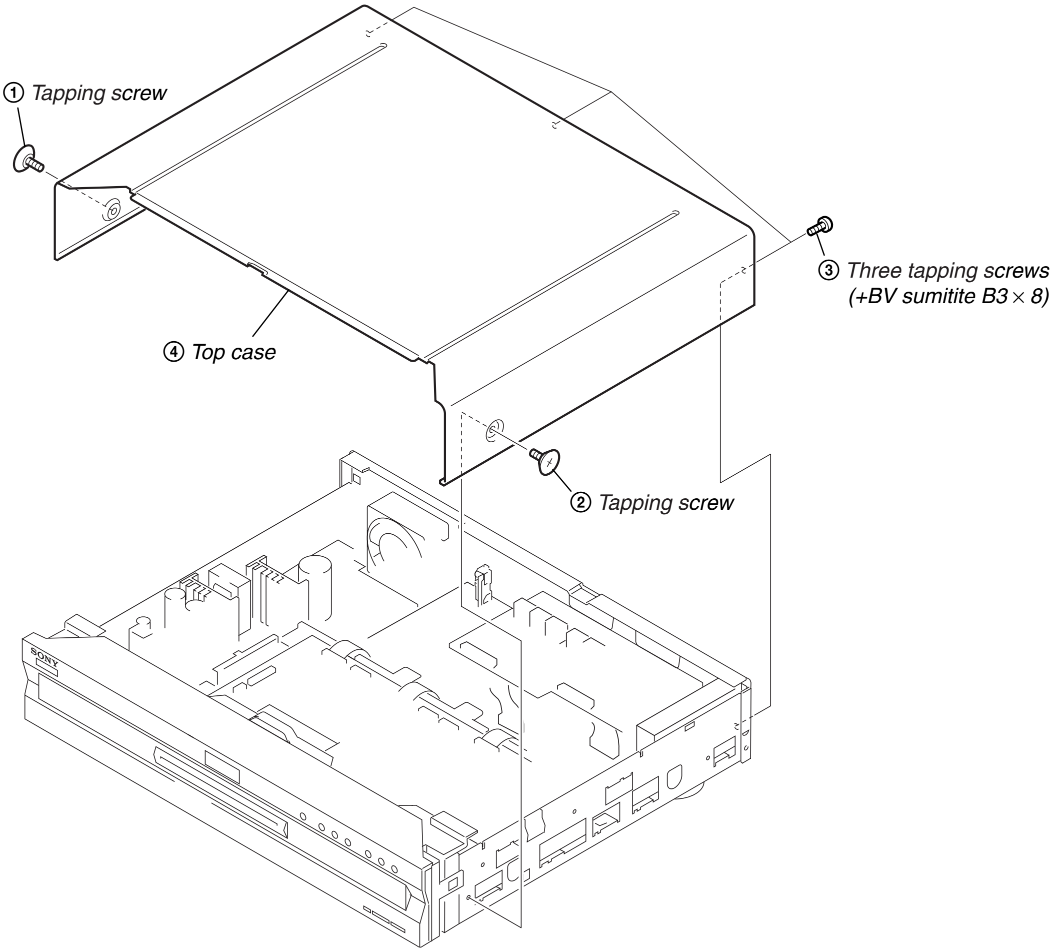
SECTION 2
DISASSEMBLY

NOTE: The following flow chart shows the disassembly procedure.


Set
Top case
(Page 2-2)
Tray cover assembly
(Page 2-4)
ER-020 board
(Page 2-2)
Power block
(Page 2-3)
D.C. fan
(Page 2-3)
Rear panel
(Page 2-4)
Front panel section
(Page 2-5)
Aluminum door, Door base
(Page 2-5)
Shaft (R)
(Page 2-6)
RD-045 board
(Page 2-7)
FL-130 board
(Page 2-8)
FR-195 board
(Page 2-8)
TX-001 board
(Page 2-9)
DVD drive
(Page 2-9)
AV-071 board
(Page 2-10)

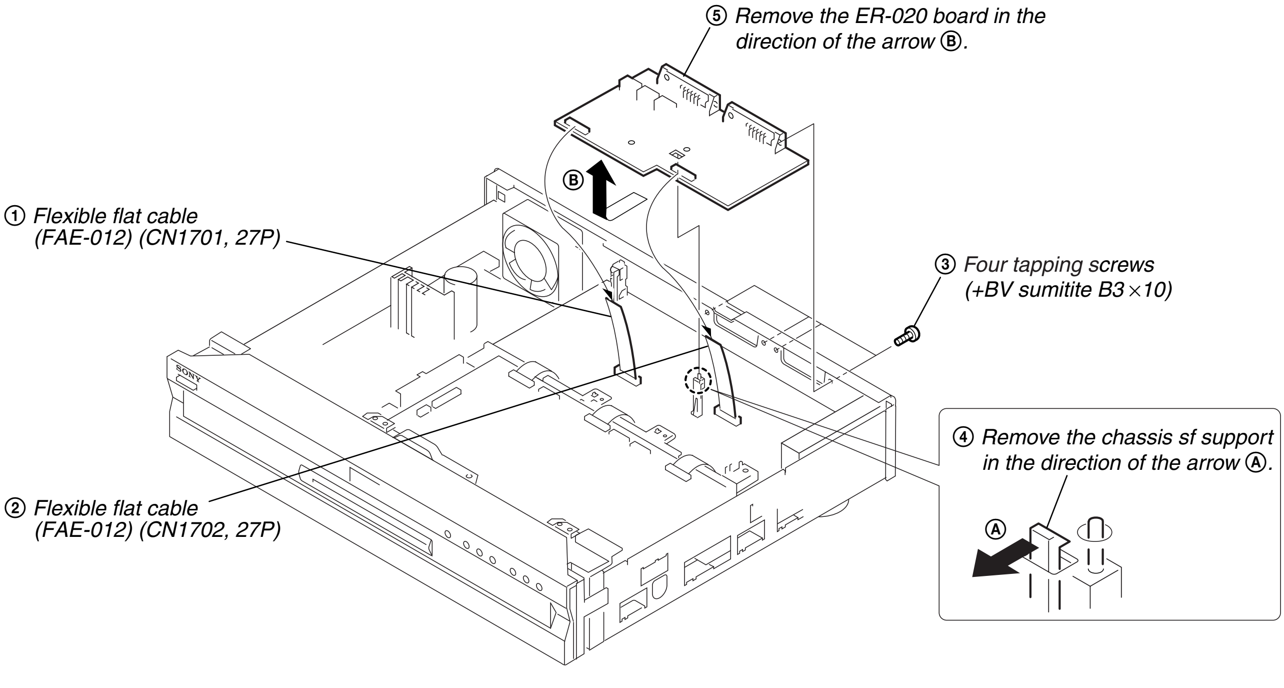
NOTE: Follow the disassembly procedure in the numerical order given.

2-1. TOP CASE



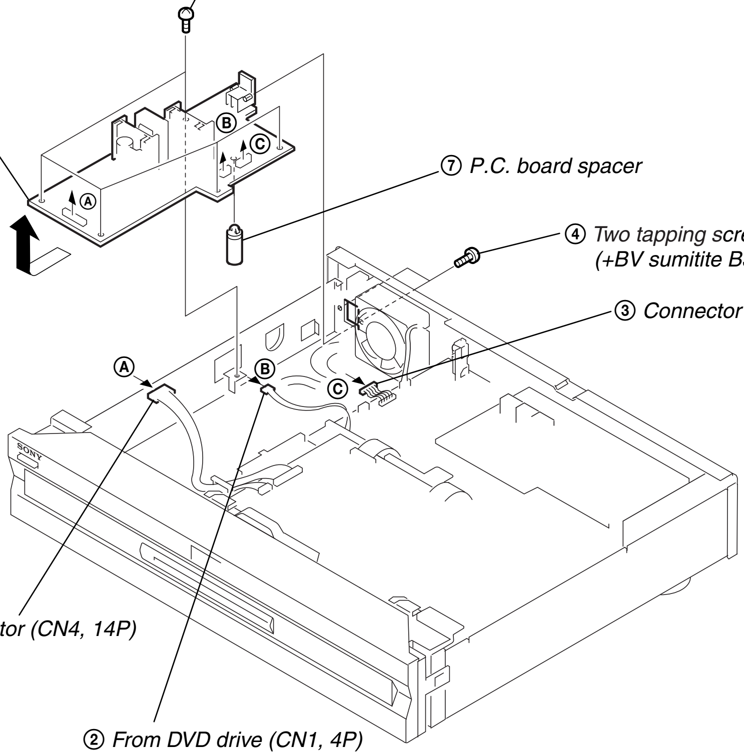
① *Tapping screw*
③ *Three tapping screws*
(+BV sumitite B3 × 8)
④ *Top case*
② *Tapping screw*
SONY

2-2. ER-020 BOARD

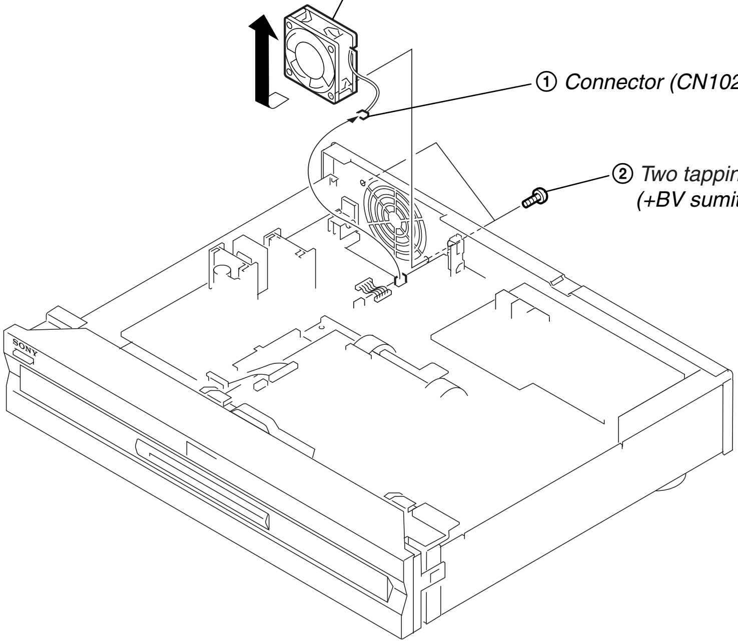


⑤ *Remove the ER-020 board in the direction of the arrow* Ⓑ.
Ⓑ
① *Flexible flat cable*
(FAE-012) (CN1701, 27P)
③ *Four tapping screws*
(+BV sumitite B3 ×10)
SONY
④ *Remove the chassis sf support in the direction of the arrow* Ⓐ.
Ⓐ
② *Flexible flat cable*
(FAE-012) (CN1702, 27P)

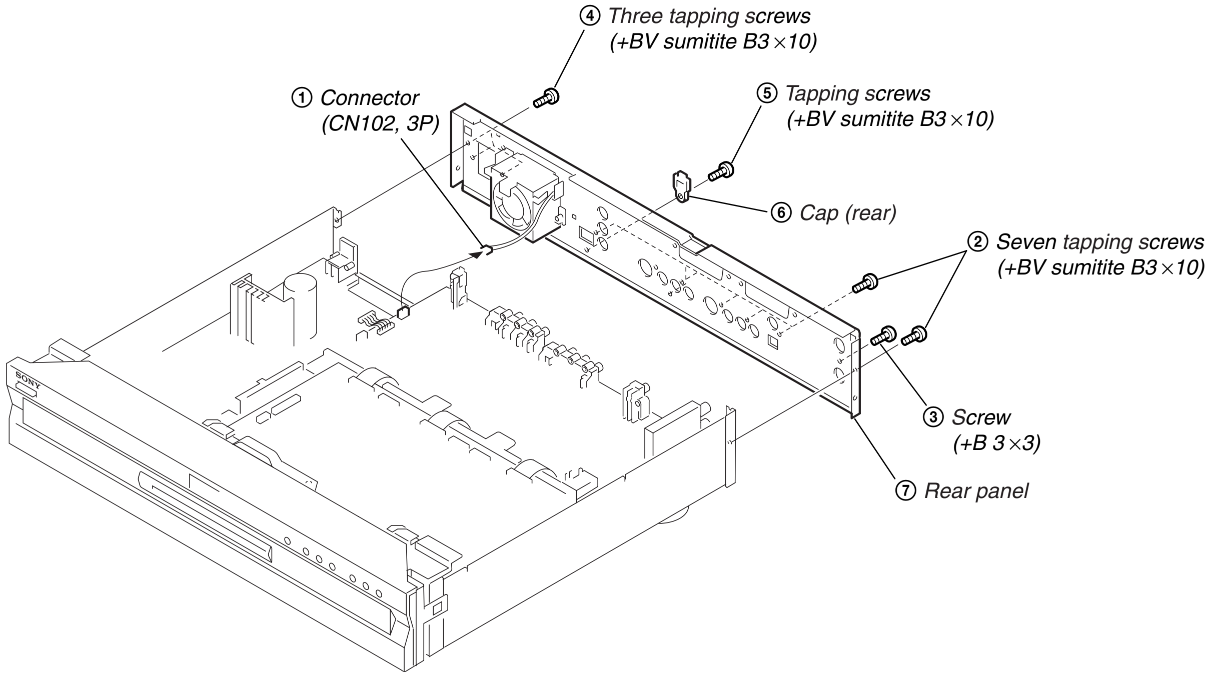
2-3. POWER BLOCK


⑥ Remove the power block in the direction of the arrow.
⑤ Five tapping screws (+BV sumitite B3 ×8)
⑦ P.C. board spacer
④ Two tapping screws (+BV sumitite B3 ×10)
③ Connector (CN3, 13P)
A
B
C
SONY
① Connector (CN4, 14P)
② From DVD drive (CN1, 4P)

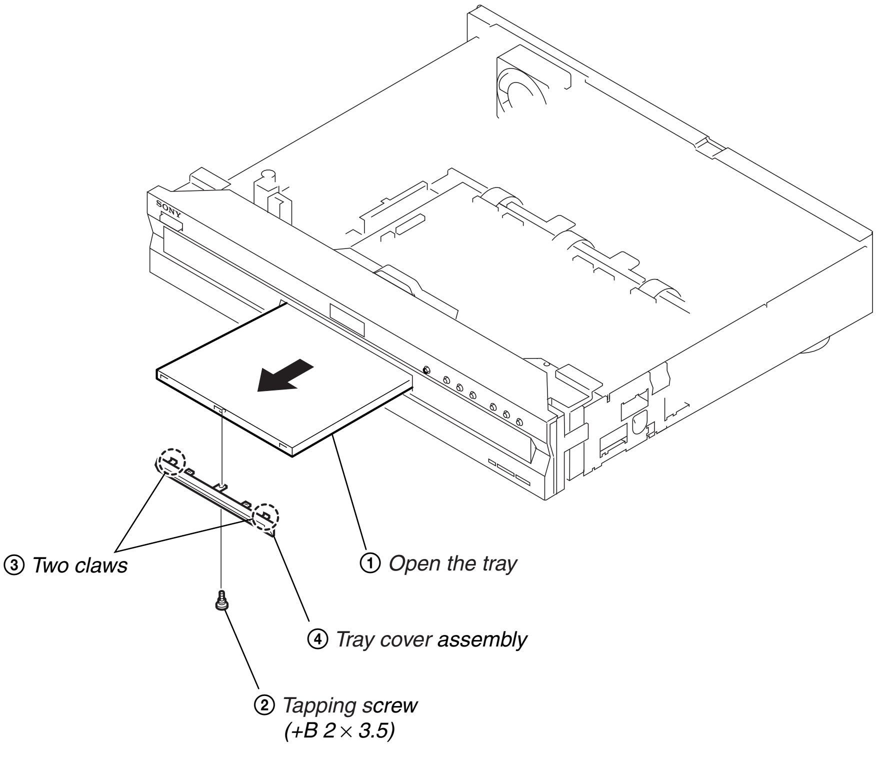
2-4. D. C. FAN


④ Remove the D.C. fan in the direction of the arrow.
① Connector (CN102, 3P)
② Two tapping screws (+BV sumitite B3 ×10)
SONY

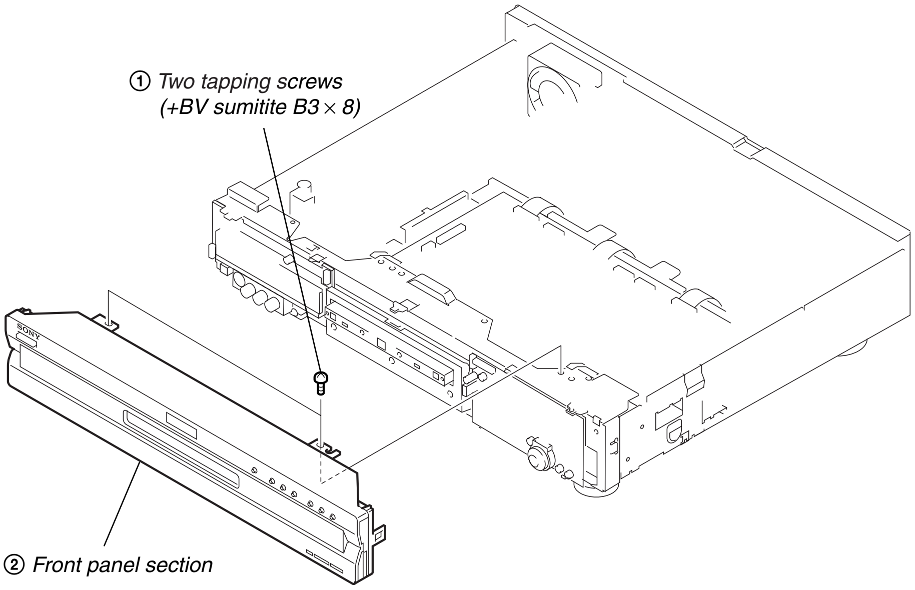
2-5. REAR PANEL


④ Three tapping screws
(+BV sumitite B3 × 10)
① Connector
(CN102, 3P)
⑤ Tapping screws
(+BV sumitite B3 × 10)
⑥ Cap (rear)
② Seven tapping screws
(+BV sumitite B3 × 10)
③ Screw
(+B 3 × 3)
⑦ Rear panel
SONY

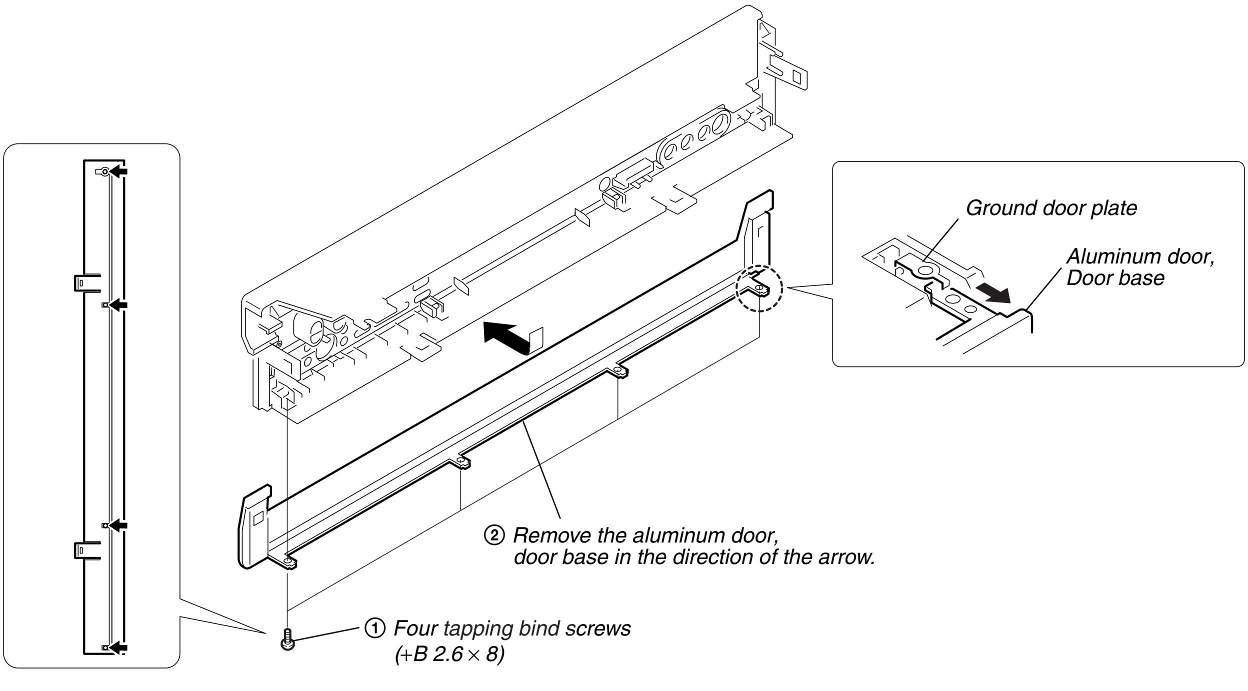
2-6. TRAY COVER ASSEMBLY


SONY
③ Two claws
① Open the tray
④ Tray cover assembly
② Tapping screw
(+B 2 × 3.5)

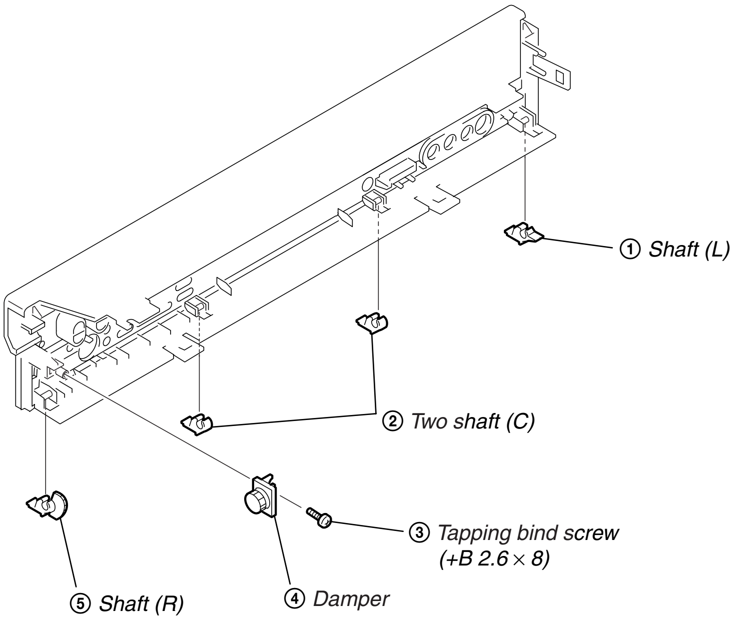
2-7. FRONT PANEL SECTION


① Two tapping screws
(+BV sumitite B3 × 8)
SONY
② Front panel section

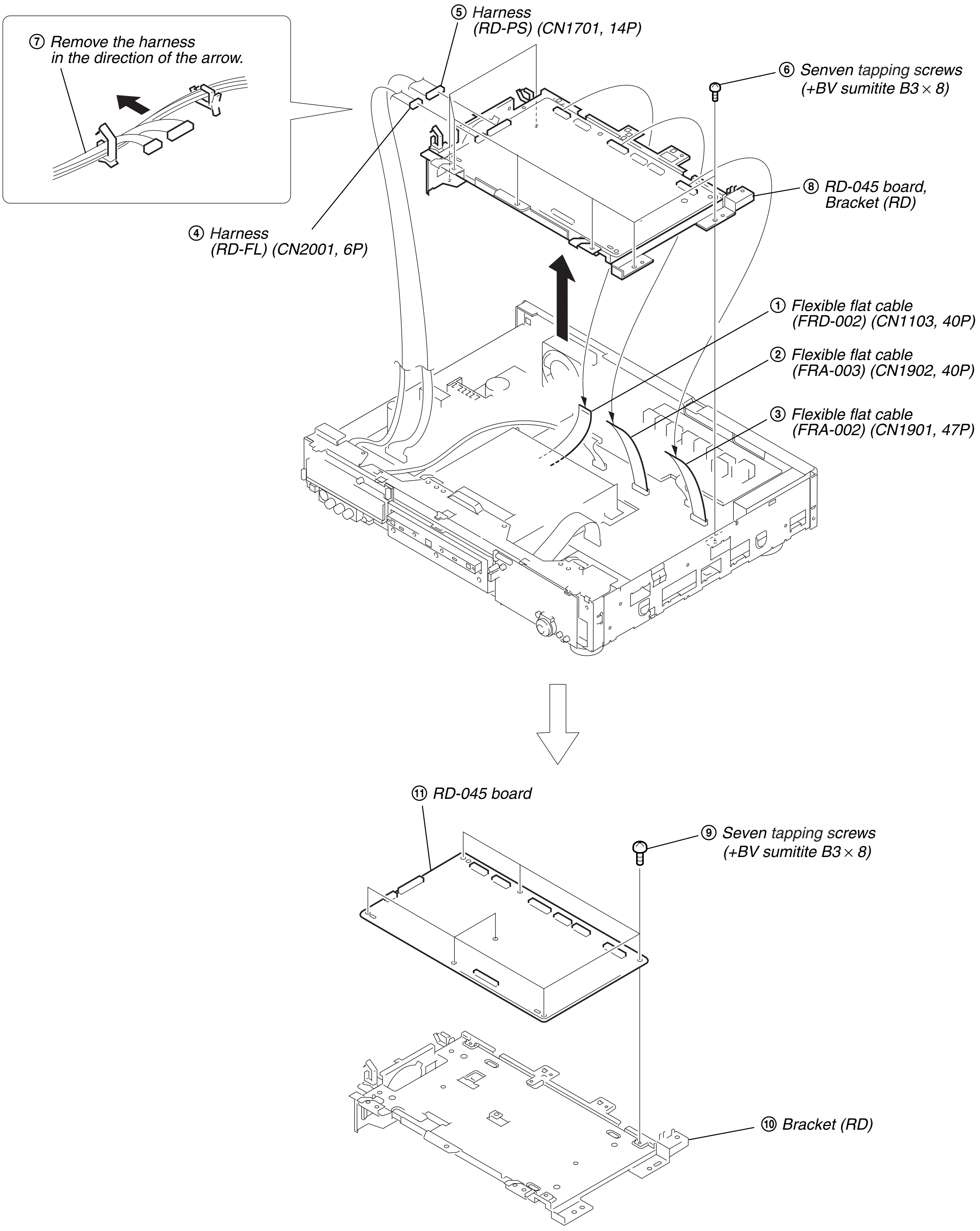
2-8. ALUMINUM DOOR, DOOR BASE


Ground door plate
Aluminum door,
Door base
② Remove the aluminum door,
door base in the direction of the arrow.
① Four tapping bind screws
(+B 2.6 × 8)

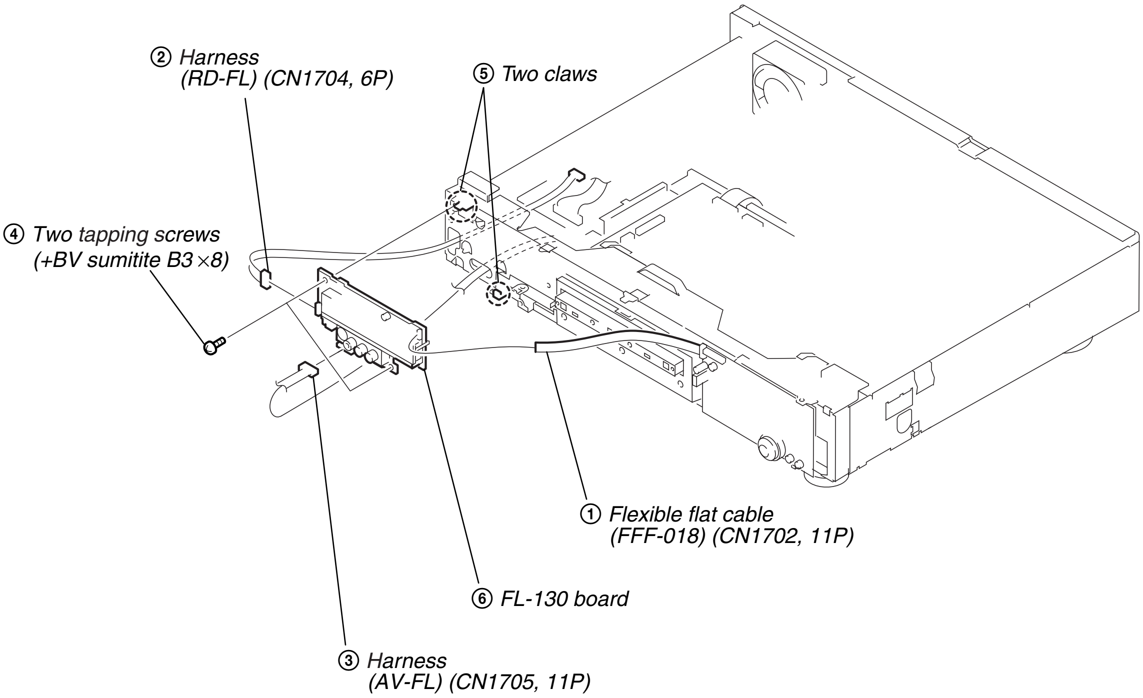
2-9. SHAFT (R)


① Shaft (L)
② Two shaft (C)
③ Tapping bind screw
(+B 2.6 × 8)
④ Damper
⑤ Shaft (R)

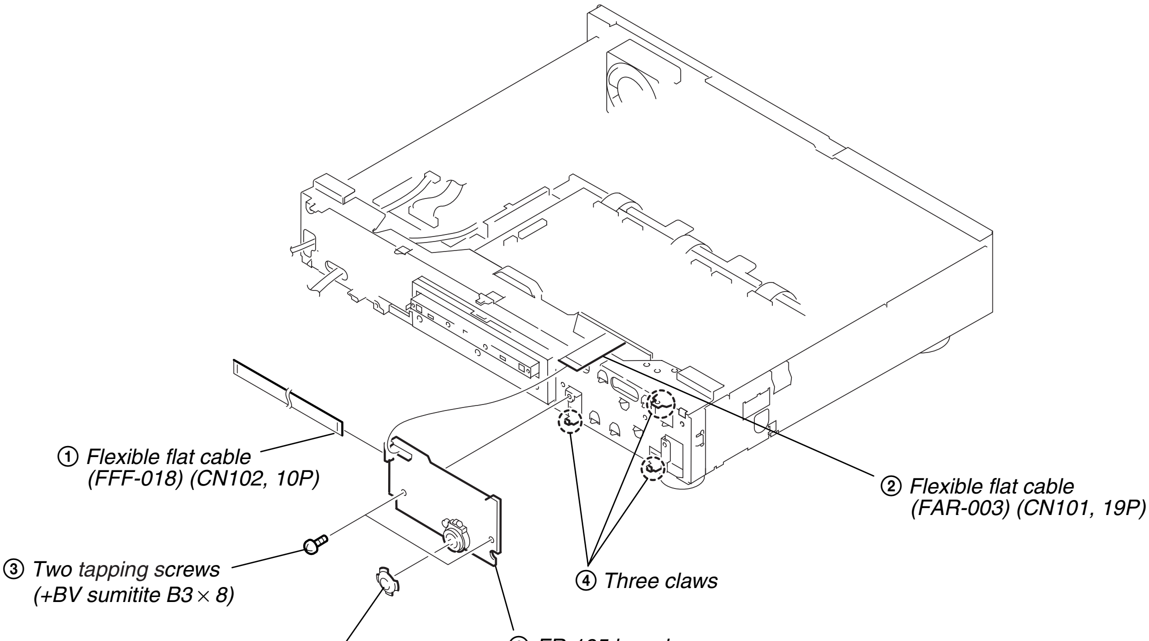
2-10. RD-045 BOARD


⑦ Remove the harness
in the direction of the arrow.
⑤ Harness
(RD-PS) (CN1701, 14P)
⑥ Senven tapping screws
(+BV sumitite B3 × 8)
⑧ RD-045 board,
Bracket (RD)
④ Harness
(RD-FL) (CN2001, 6P)
① Flexible flat cable
(FRD-002) (CN1103, 40P)
② Flexible flat cable
(FRA-003) (CN1902, 40P)
③ Flexible flat cable
(FRA-002) (CN1901, 47P)
⑪ RD-045 board
⑨ Seven tapping screws
(+BV sumitite B3 × 8)
⑩ Bracket (RD)

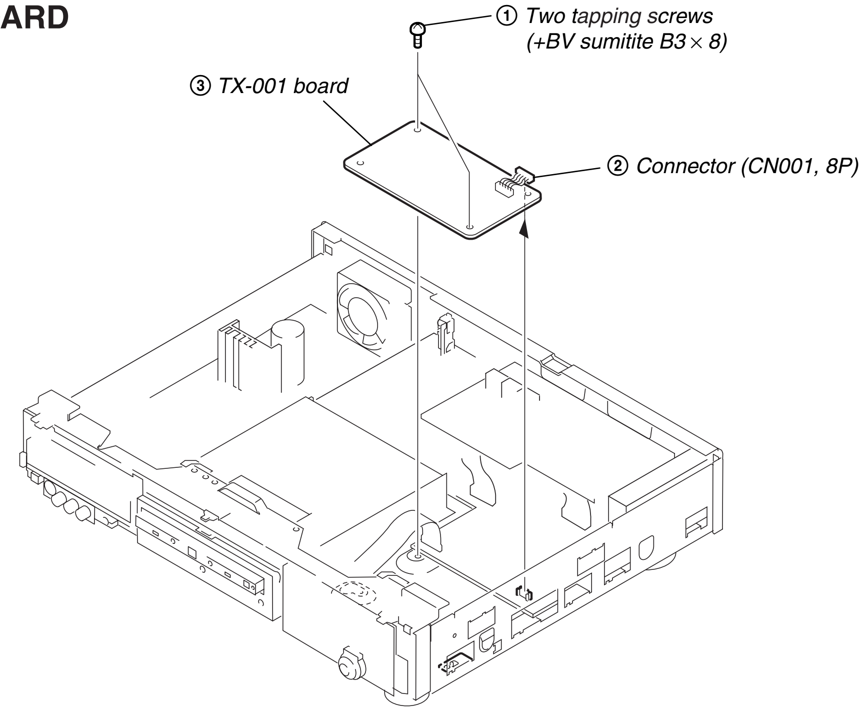
2-11. FL-130 BOARD


② Harness
(RD-FL) (CN1704, 6P)
⑤ Two claws
④ Two tapping screws
(+BV sumitite B3 ×8)
① Flexible flat cable
(FFF-018) (CN1702, 11P)
⑥ FL-130 board
③ Harness
(AV-FL) (CN1705, 11P)

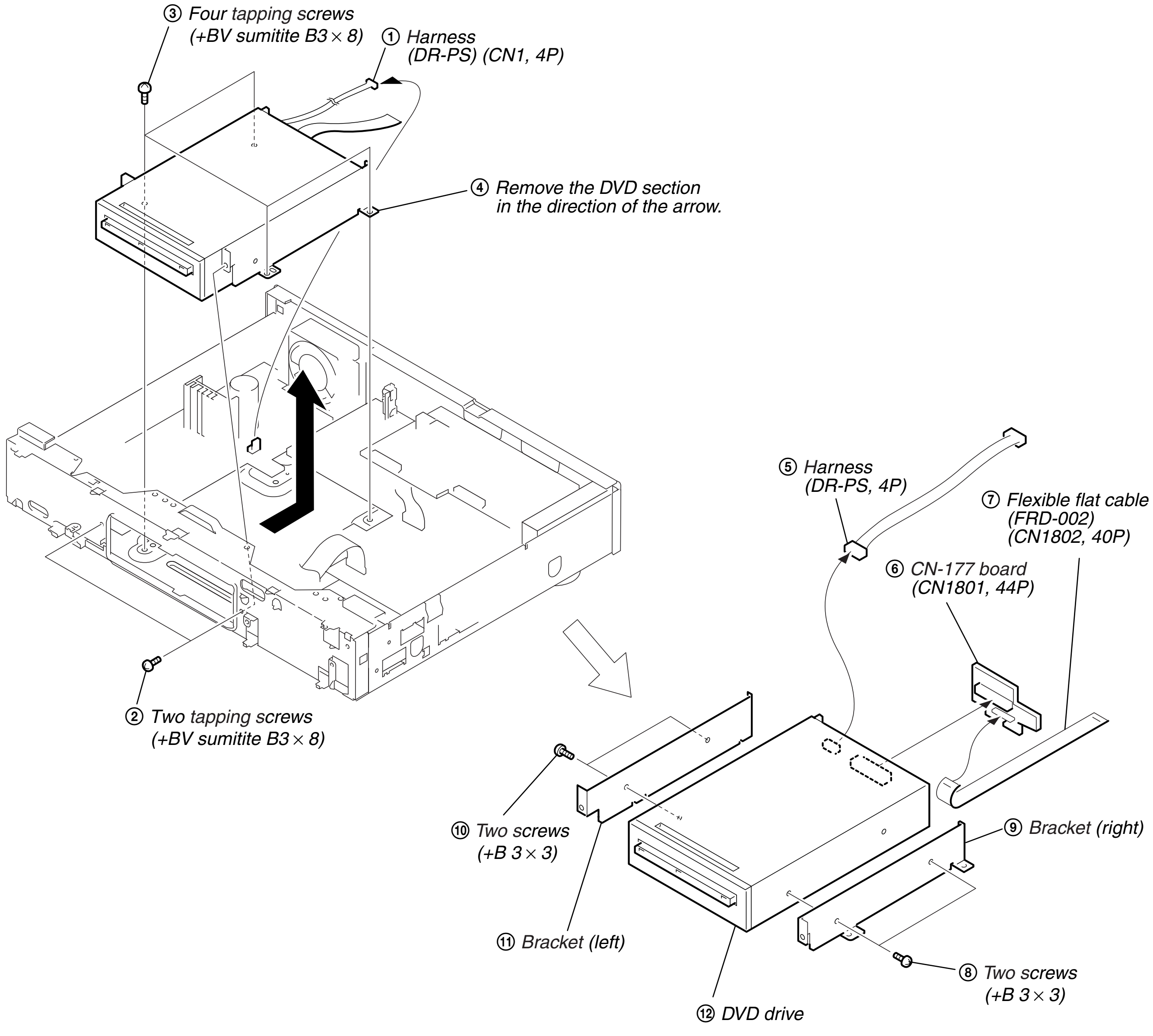
2-12. FR-195 BOARD


① Flexible flat cable
(FFF-018) (CN102, 10P)
② Flexible flat cable
(FAR-003) (CN101, 19P)
③ Two tapping screws
(+BV sumitite B3 × 8)
④ Three claws
⑥ FR-195 board
⑤ Cursor

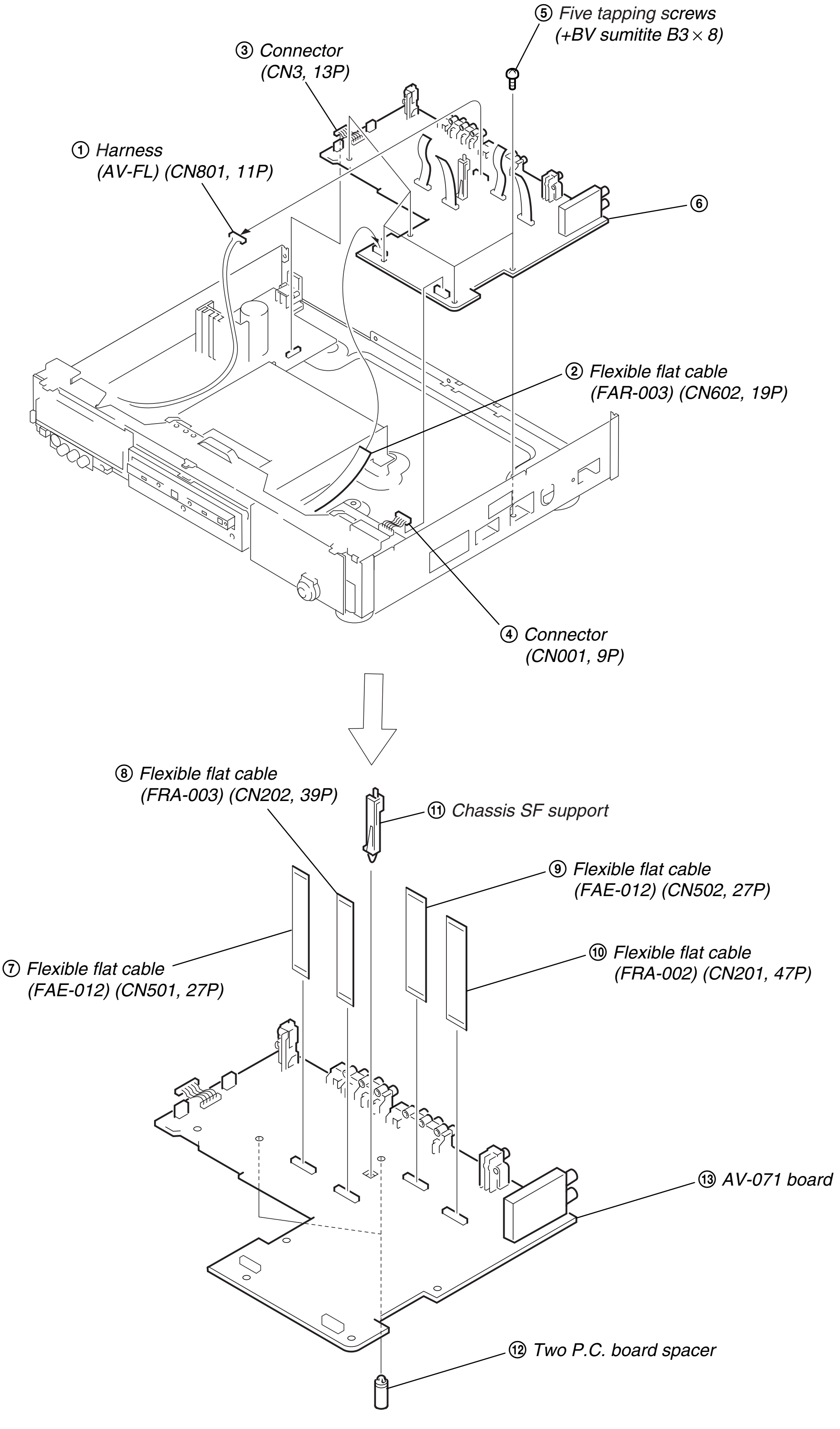
2-13. TX-001 BOARD


① Two tapping screws
(+BV sumitite B3 × 8)
③ TX-001 board
② Connector (CN001, 8P)

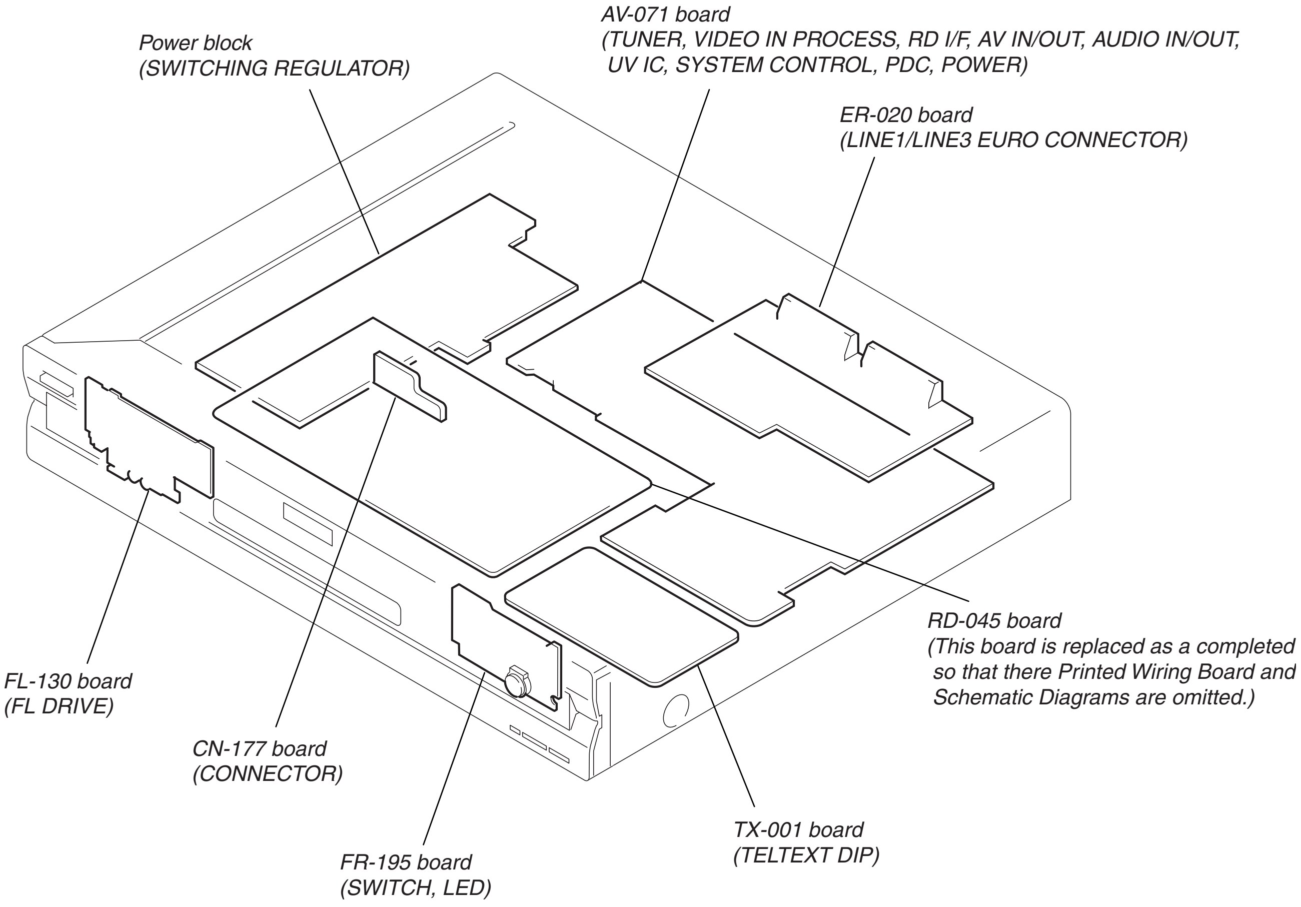
2-14. DVD DRIVE


③ Four tapping screws
(+BV sumitite B3 × 8)
① Harness
(DR-PS) (CN1, 4P)
④ Remove the DVD section
in the direction of the arrow.
② Two tapping screws
(+BV sumitite B3 × 8)
⑤ Harness
(DR-PS, 4P)
⑦ Flexible flat cable
(FRD-002)
(CN1802, 40P)
⑥ CN-177 board
(CN1801, 44P)
⑩ Two screws
(+B 3 × 3)
⑨ Bracket (right)
⑪ Bracket (left)
⑧ Two screws
(+B 3 × 3)
⑫ DVD drive

2-15. AV-071 BOARD


⑤ Five tapping screws
(+BV sumitite B3 × 8)
③ Connector
(CN3, 13P)
① Harness
(AV-FL) (CN801, 11P)
⑥
② Flexible flat cable
(FAR-003) (CN602, 19P)
④ Connector
(CN001, 9P)
⑧ Flexible flat cable
(FRA-003) (CN202, 39P)
⑪ Chassis SF support
⑨ Flexible flat cable
(FAE-012) (CN502, 27P)
⑩ Flexible flat cable
(FRA-002) (CN201, 47P)
⑦ Flexible flat cable
(FAE-012) (CN501, 27P)
⑬ AV-071 board
⑫ Two P.C. board spacer

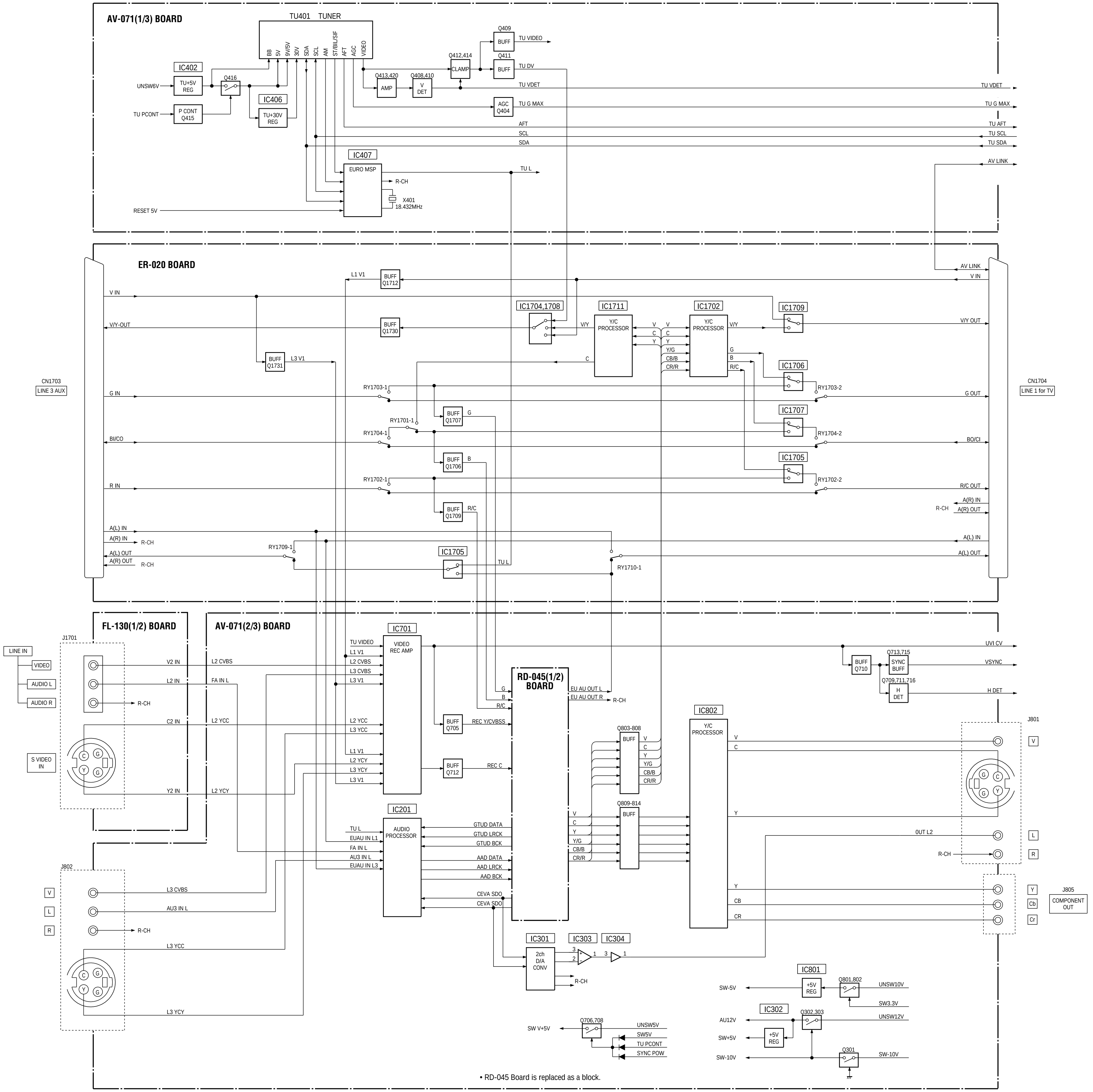
2-16. CIRCUIT BOARDS LOCATION


Power block
(SWITCHING REGULATOR)
AV-071 board
(TUNER, VIDEO IN PROCESS, RD I/F, AV IN/OUT, AUDIO IN/OUT,
UV IC, SYSTEM CONTROL, PDC, POWER)
ER-020 board
(LINE1/LINE3 EURO CONNECTOR)
RD-045 board
(This board is replaced as a completed
so that there Printed Wiring Board and
Schematic Diagrams are omitted.)
FL-130 board
(FL DRIVE)
CN-177 board
(CONNECTOR)
TX-001 board
(TELTEXT DIP)
FR-195 board
(SWITCH, LED)

MEMO

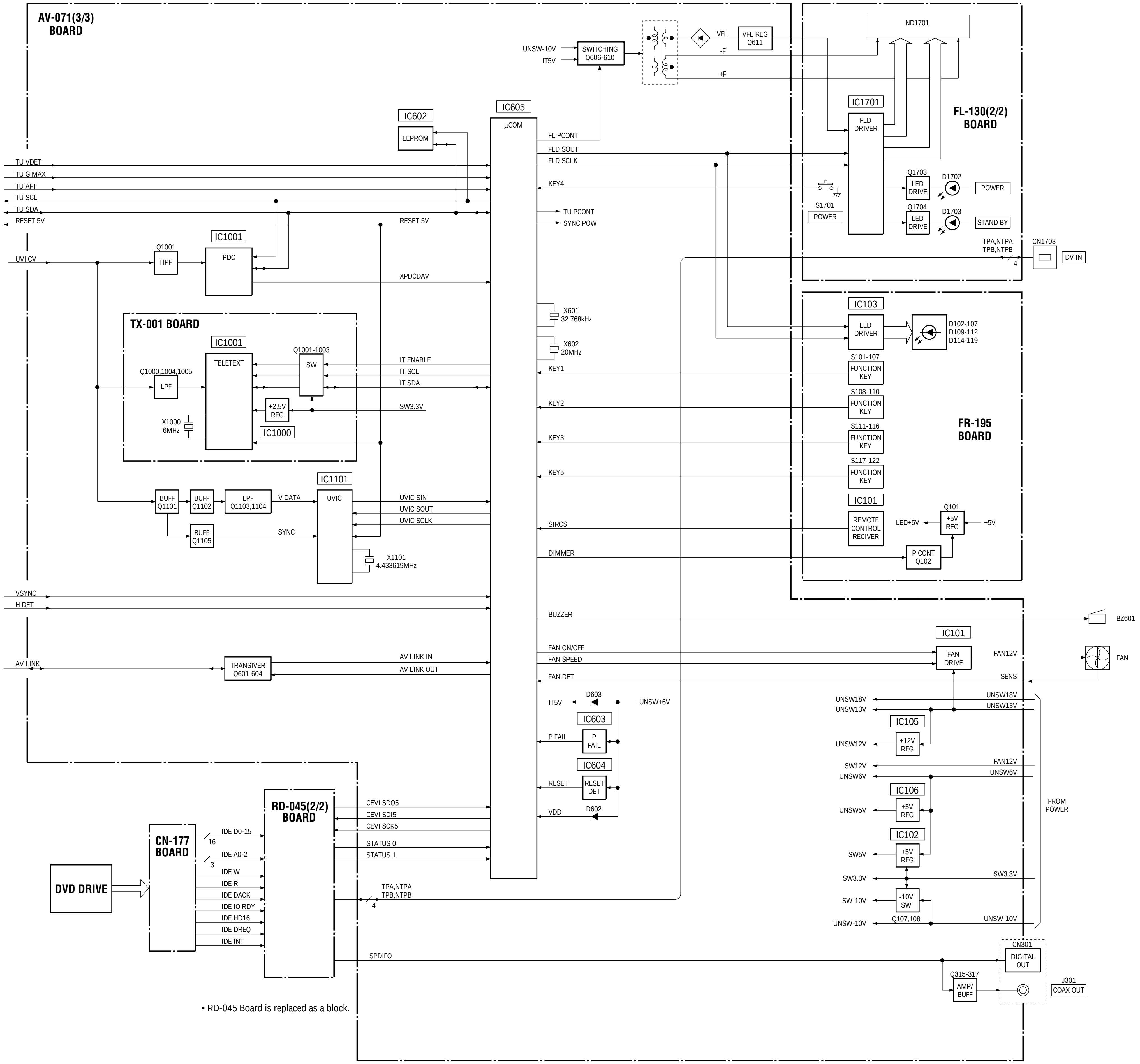
SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/2)


AV-071(1/3) BOARD
TU401 TUNER
B8
5V
9V/5V
30V
SDA
SCL
AM
ST/BL/SIF
AFT
AGC
VIDEO
IC402
TU+5V REG
UNSW6V
Q416
TU PCONT
P CONT Q415
IC406
TU+30V REG
Q413,420 AMP
Q408,410 V DET
Q412,414 CLAMP
Q409 BUFF
TU VIDEO
Q411 BUFF
TU DV
TU VDET
AGC Q404
TU G MAX
AFT
SCL
SDA
TU AFT
TU SCL
TU SDA
AV LINK
IC407
EURO MSP
R-CH
TU L
X401 18.432MHz
RESET 5V
ER-020 BOARD
L1 V1
BUFF Q1712
V IN
V/Y-OUT
BUFF Q1730
BUFF Q1731
L3 V1
IC1704,1708
IC1711
Y/C PROCESSOR
IC1702
Y/C PROCESSOR
V/Y
V
C
Y
Y/G
CB/B
CR/R
G
B
R/C
IC1709
IC1706
IC1707
IC1705
V/Y OUT
CN1703 LINE 3 AUX
CN1704 LINE 1 for TV
G IN
RY1703-1
RY1703-2
G OUT
RY1701-1
BUFF Q1707
RY1704-1
RY1704-2
BI/CO
BO/CI
BUFF Q1706
RY1702-1
RY1702-2
R IN
R/C OUT
BUFF Q1709
A(R) IN
A(R) OUT
A(L) IN
A(L) OUT
RY1709-1
RY1710-1
FL-130(1/2) BOARD
AV-071(2/3) BOARD
J1701
LINE IN
VIDEO
AUDIO L
AUDIO R
S VIDEO IN
V2 IN
L2 IN
C2 IN
Y2 IN
L2 CVBS
FA IN L
L2 YCC
L2 YCY
IC701
VIDEO REC AMP
TU VIDEO
L1 V1
L2 CVBS
L3 CVBS
L3 V1
L2 YCC
L3 YCC
L2 YCY
L3 YCY
BUFF Q705
REC Y/CVBSS
BUFF Q712
REC C
RD-045(1/2) BOARD
EU AU OUT L
EU AU OUT R
IC201
AUDIO PROCESSOR
TU L
EUAU IN L1
FA IN L
AU3 IN L
EUAU IN L3
GTUD DATA
GTUD LRCK
GTUD BCK
AAD DATA
AAD LRCK
AAD BCK
CEVA SDO
Q803-808 BUFF
Q809-814 BUFF
IC802
Y/C PROCESSOR
UVI CV
BUFF Q710
Q713,715 SYNC BUFF
VSYNC
Q709,711,716 H DET
H DET
J801
OUT L2
J805 COMPONENT OUT
Y
Cb
Cr
CB
CR
J802
L3 CVBS
AU3 IN L
L3 YCC
L3 YCY
IC301
2ch D/A CONV
IC303
IC304
IC801
+5V REG
Q801,802
SW-5V
UNSW10V
SW3.3V
IC302
Q302,303
AU12V
UNSW12V
SW+5V
SW-10V
Q301
SW V+5V
Q706,708
UNSW5V
SW5V
TU PCONT
SYNC POW
C
Y
G
V
L
R

• RD-045 Board is replaced as a block.

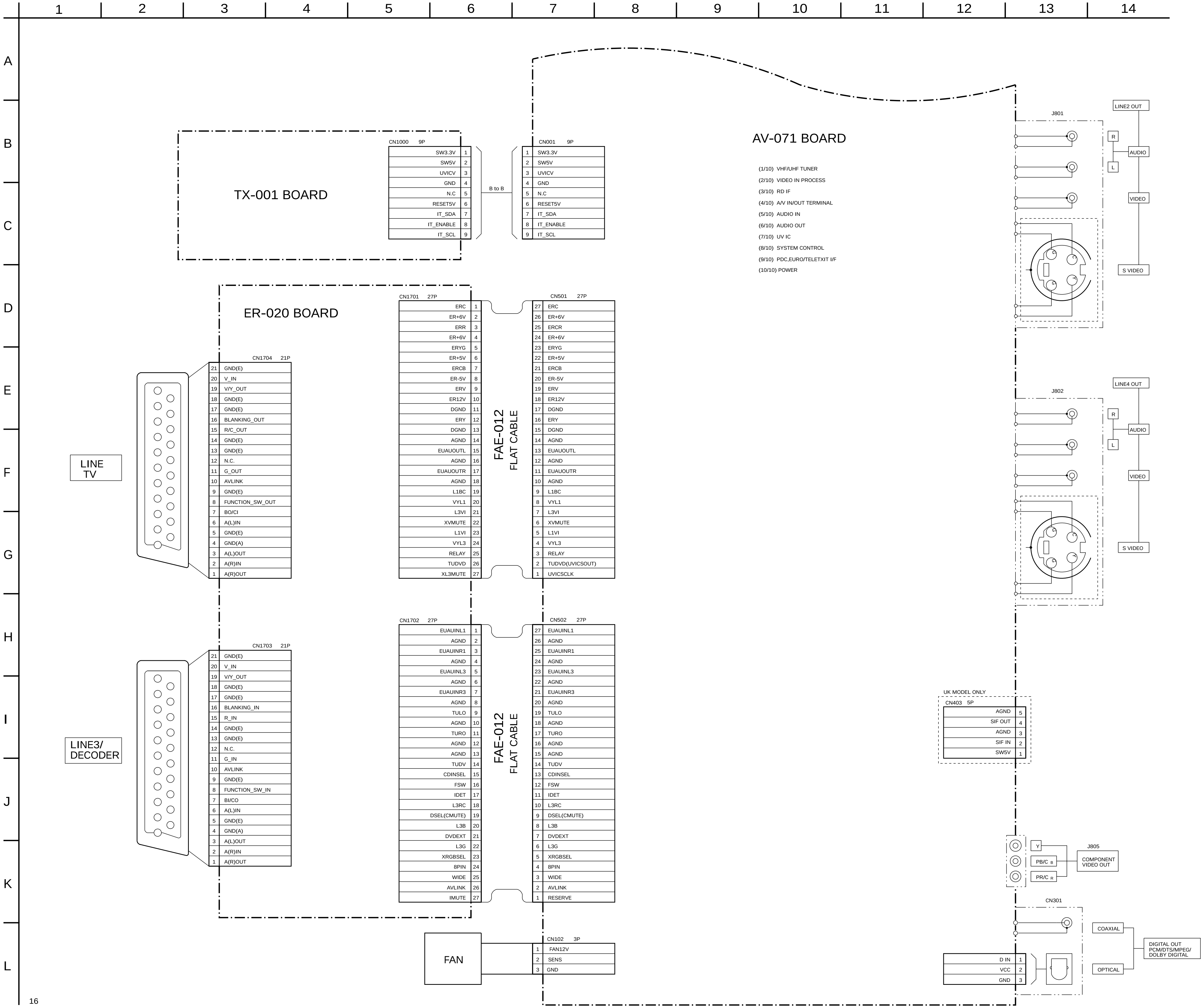
3-2. OVERALL BLOCK DIAGRAM (2/2)


AV-071(3/3)
BOARD
UNSW-10V
IT5V
SWITCHING
Q606-610
VFL
VFL REG
Q611
-F
+F
ND1701
IC1701
FLD
DRIVER
FL-130(2/2)
BOARD
IC602
EEPROM
IC605
µCOM
FL PCONT
FLD SOUT
FLD SCLK
KEY4
TU PCONT
SYNC POW
TU VDET
TU G MAX
TU AFT
TU SCL
TU SDA
RESET 5V
RESET 5V
Q1703
LED
DRIVE
D1702
POWER
S1701
POWER
Q1704
LED
DRIVE
D1703
STAND BY
TPA,NTPA
TPB,NTPB
4
CN1703
DV IN
UVI CV
Q1001
HPF
IC1001
PDC
XPDCDAV
X601
32.768kHz
X602
20MHz
IC103
LED
DRIVER
D102-107
D109-112
D114-119
TX-001 BOARD
IC1001
TELETEXT
Q1001-1003
SW
IT ENABLE
IT SCL
IT SDA
Q1000,1004,1005
LPF
+2.5V
REG
SW3.3V
X1000
6MHz
IC1000
KEY1
S101-107
FUNCTION
KEY
KEY2
S108-110
FUNCTION
KEY
KEY3
S111-116
FUNCTION
KEY
FR-195
BOARD
KEY5
S117-122
FUNCTION
KEY
IC1101
UVIC
BUFF
Q1101
BUFF
Q1102
LPF
Q1103,1104
V DATA
UVIC SIN
UVIC SOUT
UVIC SCLK
BUFF
Q1105
SYNC
X1101
4.433619MHz
SIRCS
IC101
REMOTE
CONTROL
RECIVER
Q101
LED+5V
+5V
REG
+5V
DIMMER
P CONT
Q102
VSYNC
H DET
BUZZER
BZ601
IC101
FAN ON/OFF
FAN SPEED
FAN
DRIVE
FAN12V
FAN
FAN DET
SENS
AV LINK
TRANSIVER
Q601-604
AV LINK IN
AV LINK OUT
IT5V
D603
UNSW+6V
UNSW18V
UNSW13V
UNSW18V
UNSW13V
IC603
P FAIL
P
FAIL
IC105
UNSW12V
+12V
REG
IC604
SW12V
FAN12V
UNSW6V
UNSW6V
RESET
RESET
DET
IC106
VDD
D602
UNSW5V
+5V
REG
FROM
POWER
CEVI SDO5
CEVI SDI5
CEVI SCK5
RD-045(2/2)
BOARD
CN-177
BOARD
IDE D0-15
16
IDE A0-2
3
IDE W
IDE R
IDE DACK
IDE IO RDY
IDE HD16
IDE DREQ
IDE INT
STATUS 0
STATUS 1
IC102
SW5V
+5V
REG
SW3.3V
SW3.3V
DVD DRIVE
TPA,NTPA
TPB,NTPB
4
SW-10V
-10V
SW
UNSW-10V
Q107,108
UNSW-10V
SPDIFO
CN301
DIGITAL
OUT
Q315-317
AMP/
BUFF
J301
COAX OUT

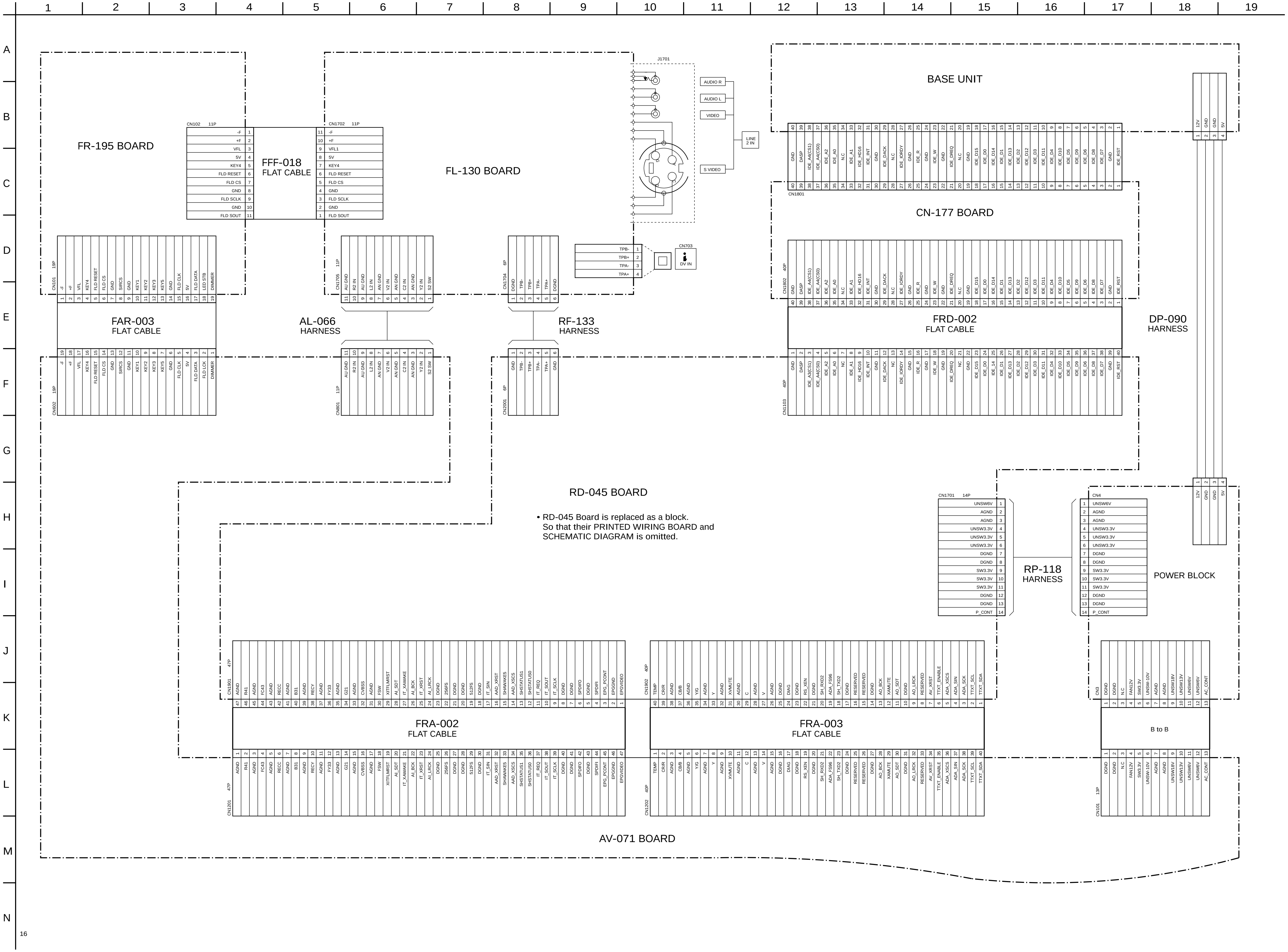
• RD-045 Board is replaced as a block.

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM (1/2)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
K
L
TX-001 BOARD
CN1000 9P
SW3.3V 1
SW5V 2
UVICV 3
GND 4
N.C 5
RESET5V 6
IT_SDA 7
IT_ENABLE 8
IT_SCL 9
B to B
CN001 9P
1 SW3.3V
2 SW5V
3 UVICV
4 GND
5 N.C
6 RESET5V
7 IT_SDA
8 IT_ENABLE
9 IT_SCL
AV-071 BOARD
(1/10) VHF/UHF TUNER
(2/10) VIDEO IN PROCESS
(3/10) RD IF
(4/10) A/V IN/OUT TERMINAL
(5/10) AUDIO IN
(6/10) AUDIO OUT
(7/10) UV IC
(8/10) SYSTEM CONTROL
(9/10) PDC,EURO/TELETXIT I/F
(10/10) POWER
J801
LINE2 OUT
R
L
AUDIO
VIDEO
S VIDEO
ER-020 BOARD
CN1701 27P
ERC 1
ER+6V 2
ERR 3
ER+6V 4
ERYG 5
ER+5V 6
ERCB 7
ER-5V 8
ERV 9
ER12V 10
DGND 11
ERY 12
DGND 13
AGND 14
EUAUOUTL 15
AGND 16
EUAUOUTR 17
AGND 18
L1BC 19
VYL1 20
L3VI 21
XVMUTE 22
L1VI 23
VYL3 24
RELAY 25
TUDVD 26
XL3MUTE 27
FAE-012
FLAT CABLE
CN501 27P
27 ERC
26 ER+6V
25 ERCR
24 ER+6V
23 ERYG
22 ER+5V
21 ERCB
20 ER-5V
19 ERV
18 ER12V
17 DGND
16 ERY
15 DGND
14 AGND
13 EUAUOUTL
12 AGND
11 EUAUOUTR
10 AGND
9 L1BC
8 VYL1
7 L3VI
6 XVMUTE
5 L1VI
4 VYL3
3 RELAY
2 TUDVD(UVICSOUT)
1 UVICSCLK
CN1704 21P
21 GND(E)
20 V_IN
19 V/Y_OUT
18 GND(E)
17 GND(E)
16 BLANKING_OUT
15 R/C_OUT
14 GND(E)
13 GND(E)
12 N.C.
11 G_OUT
10 AVLINK
9 GND(E)
8 FUNCTION_SW_OUT
7 BO/CI
6 A(L)IN
5 GND(E)
4 GND(A)
3 A(L)OUT
2 A(R)IN
1 A(R)OUT
LINE
TV
J802
LINE4 OUT
R
L
AUDIO
VIDEO
S VIDEO
CN1702 27P
EUAUINL1 1
AGND 2
EUAUINR1 3
AGND 4
EUAUINL3 5
AGND 6
EUAUINR3 7
AGND 8
TULO 9
AGND 10
TURO 11
AGND 12
AGND 13
TUDV 14
CDINSEL 15
FSW 16
IDET 17
L3RC 18
DSEL(CMUTE) 19
L3B 20
DVDEXT 21
L3G 22
XRGBSEL 23
8PIN 24
WIDE 25
AVLINK 26
IMUTE 27
FAE-012
FLAT CABLE
CN502 27P
27 EUAUINL1
26 AGND
25 EUAUINR1
24 AGND
23 EUAUINL3
22 AGND
21 EUAUINR3
20 AGND
19 TULO
18 AGND
17 TURO
16 AGND
15 AGND
14 TUDV
13 CDINSEL
12 FSW
11 IDET
10 L3RC
9 DSEL(CMUTE)
8 L3B
7 DVDEXT
6 L3G
5 XRGBSEL
4 8PIN
3 WIDE
2 AVLINK
1 RESERVE
CN1703 21P
21 GND(E)
20 V_IN
19 V/Y_OUT
18 GND(E)
17 GND(E)
16 BLANKING_IN
15 R_IN
14 GND(E)
13 GND(E)
12 N.C.
11 G_IN
10 AVLINK
9 GND(E)
8 FUNCTION_SW_IN
7 BI/CO
6 A(L)IN
5 GND(E)
4 GND(A)
3 A(L)OUT
2 A(R)IN
1 A(R)OUT
LINE3/
DECODER
UK MODEL ONLY
CN403 5P
AGND 5
SIF OUT 4
AGND 3
SIF IN 2
SW5V 1
Y
PB/C B
PR/C R
J805
COMPONENT
VIDEO OUT
CN301
COAXIAL
OPTICAL
DIGITAL OUT
PCM/DTS/MPEG/
DOLBY DIGITAL
D IN 1
VCC 2
GND 3
FAN
CN102 3P
1 FAN12V
2 SENS
3 GND
16

4-2. FRAME SCHEMATIC DIAGRAM (2/2)


FR-195 BOARD
CN102 11P
FFF-018
FLAT CABLE
CN1702 11P
FL-130 BOARD
J1701
AUDIO R
AUDIO L
VIDEO
LINE 2 IN
S VIDEO
CN703
DV IN
BASE UNIT
CN1801
CN-177 BOARD
CN101 19P
FAR-003
FLAT CABLE
CN602 19P
CN1705 11P
AL-066
HARNESS
CN801 11P
CN1704 6P
RF-133
HARNESS
CN2001 6P
CN1802 40P
FRD-002
FLAT CABLE
CN1103 40P
DP-090
HARNESS
RD-045 BOARD
CN1701 14P
RP-118
HARNESS
CN4
POWER BLOCK
CN1901 47P
FRA-002
FLAT CABLE
CN1201 47P
CN1902 40P
FRA-003
FLAT CABLE
CN1202 40P
CN3
B to B
CN101 13P
AV-071 BOARD

• RD-045 Board is replaced as a block.
So that their PRINTED WIRING BOARD and
SCHEMATIC DIAGRAM is omitted.

4-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)

- ○—— : indicates a lead wire mounted on the component side.
- ●—— : indicates a lead wire mounted on the printed side.
- ○ : Through hole.
- ▨ : Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)

Caution:
Pattern face side: Parts on the pattern face side seen from
(Side B) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from
(Side A) the parts face are indicated.

(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μμF. 50V or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4 W (Chip resistors : 1 /10 W) unless otherwise specified.
  kΩ=1000Ω, MΩ=1000kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : non flammable resistor
- ▭ : fusible resistor
- ▭ : panel designation
- △ : internal component.
- ▭ : adjustment for repair.
- B + : B+ Line
- B − : B– Line
- Circled numbers refer to waveforms.
- Voltages are dc between measurement point.
- Readings are taken with a color-bar signals on DVD reference disc.
- Readings are taken with a digital multimeter (DC 10MW).
- Voltage variations may be noted due to normal production tolerances.

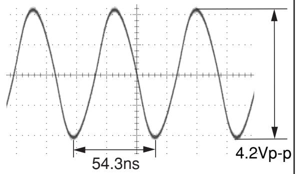
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

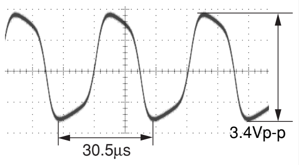
WAVEFORMS

AV-071 BOARD

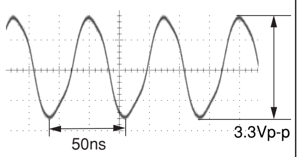
① IC407 ⑥



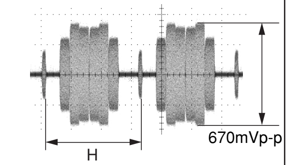
② IC605 ㊱



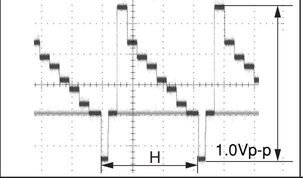
③ IC605 ㊳



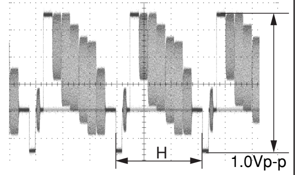
④ IC701 ⑪ (S-VIDEO IN)



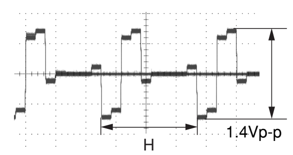
⑤ IC701 ㉑ (S-VIDEO IN)



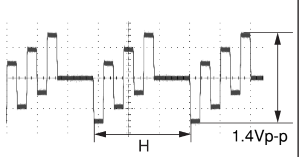
⑥ IC701 ㉞ (VIDEO IN)



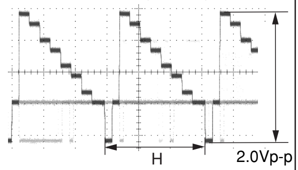
⑦ IC802 ⑳ (PLAY)



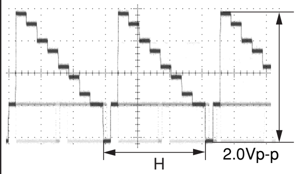
⑧ IC802 ㉒ (PLAY)



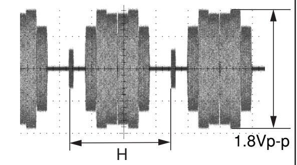
⑨ IC802 ㉔ (PLAY)



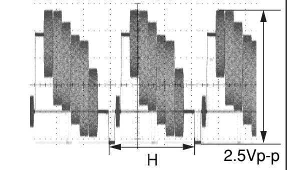
⑩ IC802 ㉙ (PLAY)



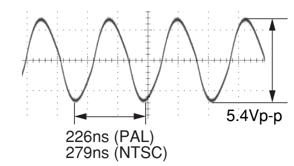
⑪ IC802 ㉛ (PLAY)



⑫ IC802 ㉝ (PLAY)



⑬ IC1101 ㉜

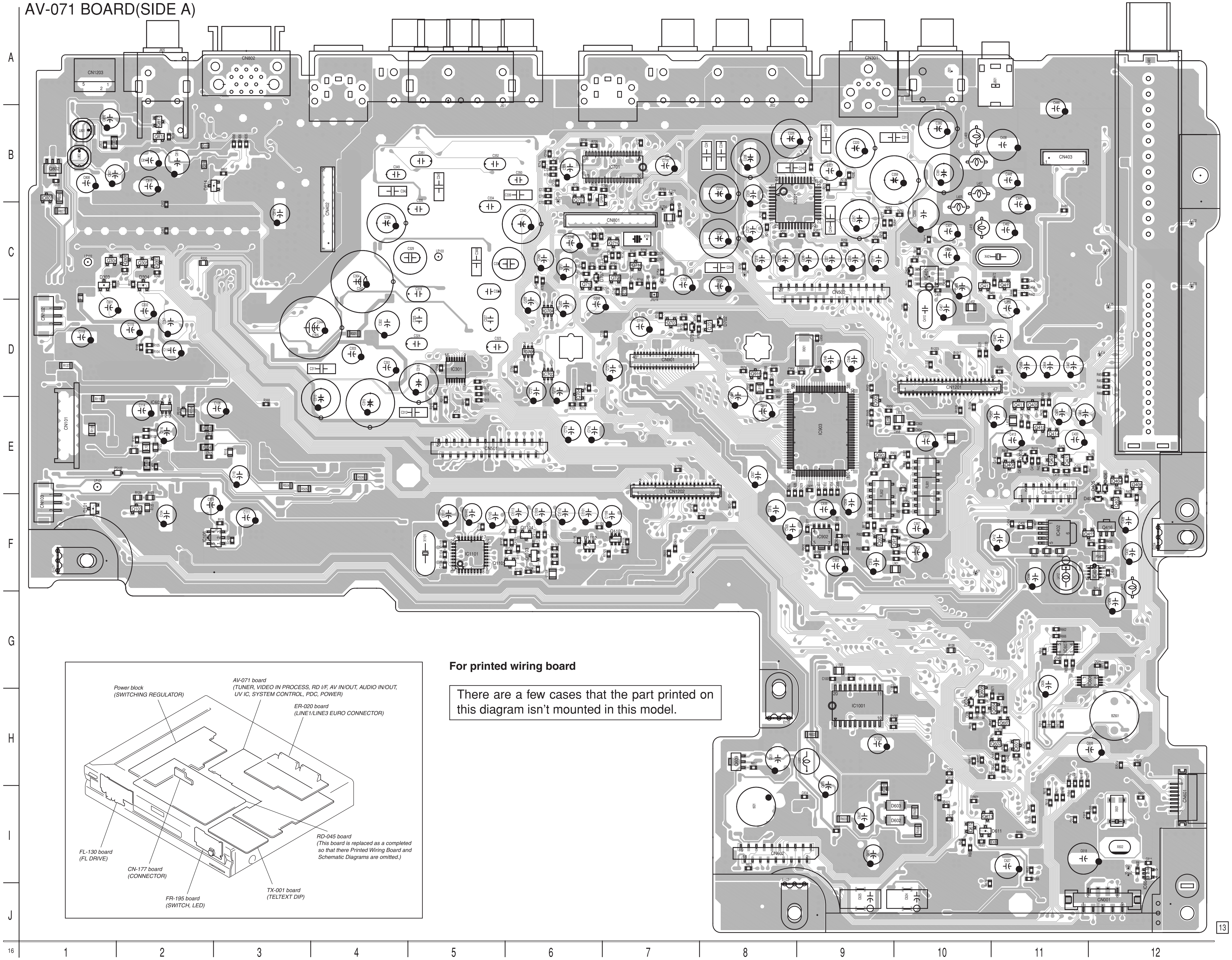


AV-071 (TUNER, VIDEO IN PROCESS, RD I/F, AV IN/OUT, AUDIO IN/OUT, UV IC, SYSTEM CONTROL, PDC, POWER) PRINTED WIRING BOARD

• LF : Uses unleaded solder.

AV-071 BOARD (SIDE A)

BZ601	H-12
CN101	E-1
CN102	D-1
CN301	A-9
CN602	H-8
CN801	C-7
CN1201	D-10
CN1202	E-7
CN1203	A-1
D303	C-1
D408	E-11
D602	I-10
D603	I-10
D611	I-10
D707	C-6
IC106	F-3
IC201	C-8
IC301	D-5
IC402	F-11
IC406	F-12
IC603	E-2
IC604	I-12
IC701	B-7
IC1101	F-5
PS101	E-2
PS102	E-2
PS401	F-12
Q103	F-2
Q304	C-1
Q306	C-2
Q404	E-12
Q406	E-12
Q408	E-11
Q409	E-11
Q410	E-11
Q412	E-11
Q413	E-11
Q414	E-11
Q415	F-11
Q416	F-12
Q609	H-8
Q612	I-10
Q613	I-10
Q705	B-6
Q709	C-7
Q710	C-7
Q713	C-6
Q716	C-7
Q801	B-1
Q802	B-1
Q1101	F-7
Q1102	F-6
Q1103	F-6
Q1104	F-6
Q1105	F-6
X601	I-12
X602	I-12
X1101	F-5

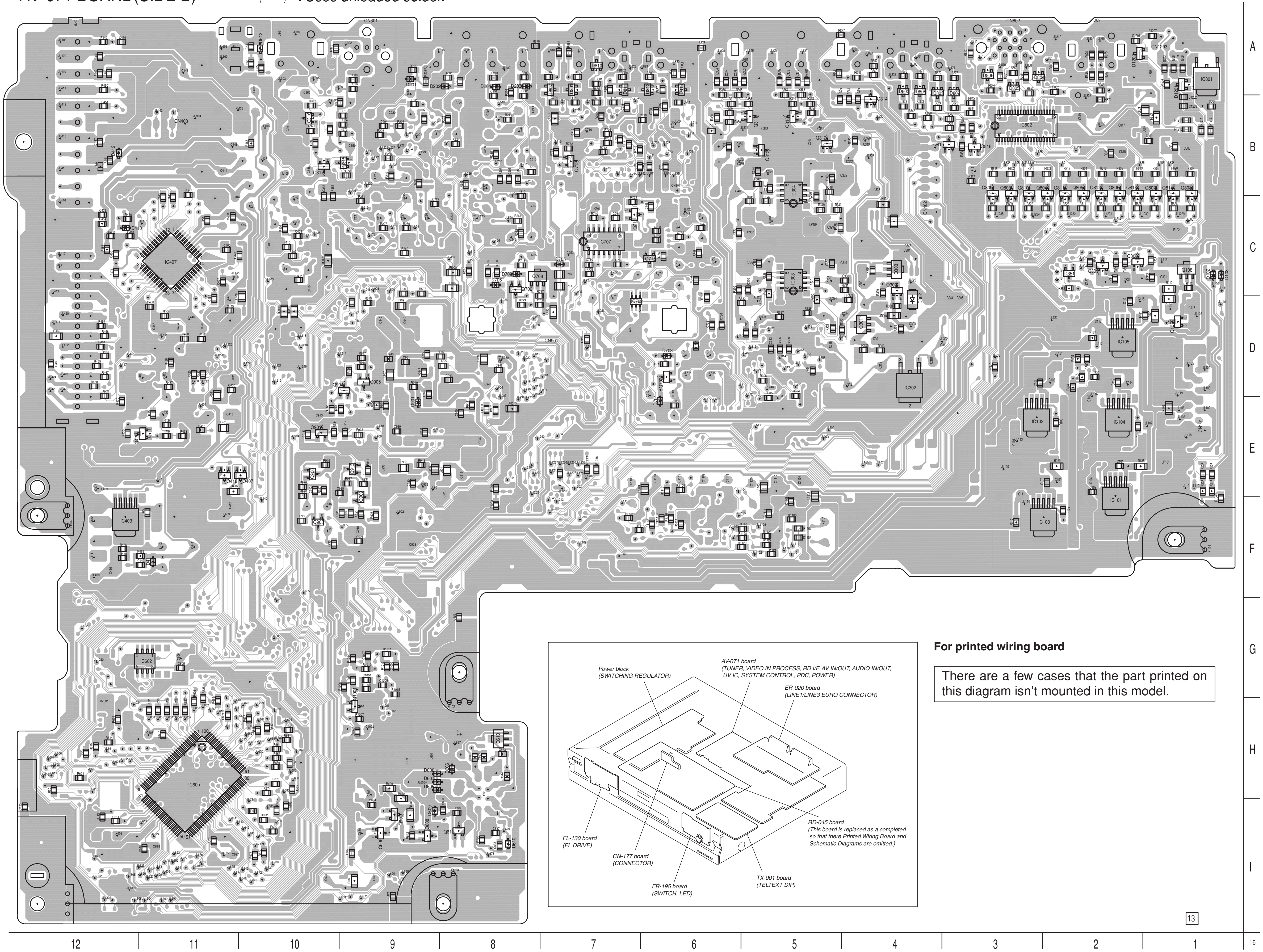

AV-071 BOARD(SIDE A)
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11
12
16
13
Power block
(SWITCHING REGULATOR)
AV-071 board
(TUNER, VIDEO IN PROCESS, RD I/F, AV IN/OUT, AUDIO IN/OUT, UV IC, SYSTEM CONTROL, PDC, POWER)
ER-020 board
(LINE1/LINE3 EURO CONNECTOR)
RD-045 board
(This board is replaced as a completed so that there Printed Wiring Board and Schematic Diagrams are omitted.)
FL-130 board
(FL DRIVE)
CN-177 board
(CONNECTOR)
FR-195 board
(SWITCH, LED)
TX-001 board
(TELETEXT DIP)

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

AV-071 BOARD(SIDE B)

• 🄻🄵 : Uses unleaded solder.


CN301
CN802
CN403
CN901
CN1203
IC407
IC403
IC602
IC605
IC707
IC304
IC303
IC302
IC105
IC102
IC104
IC101
IC103
IC801
IC802
Power block
(SWITCHING REGULATOR)
AV-071 board
(TUNER, VIDEO IN PROCESS, RD I/F, AV IN/OUT, AUDIO IN/OUT, UV IC, SYSTEM CONTROL, PDC, POWER)
ER-020 board
(LINE1/LINE3 EURO CONNECTOR)
RD-045 board
(This board is replaced as a completed so that there Printed Wiring Board and Schematic Diagrams are omitted.)
FL-130 board
(FL DRIVE)
CN-177 board
(CONNECTOR)
FR-195 board
(SWITCH, LED)
TX-001 board
(TELTEXT DIP)
A
B
C
D
E
F
G
H
I
12
11
10
9
8
7
6
5
4
3
2
1
13
16

For printed wiring board

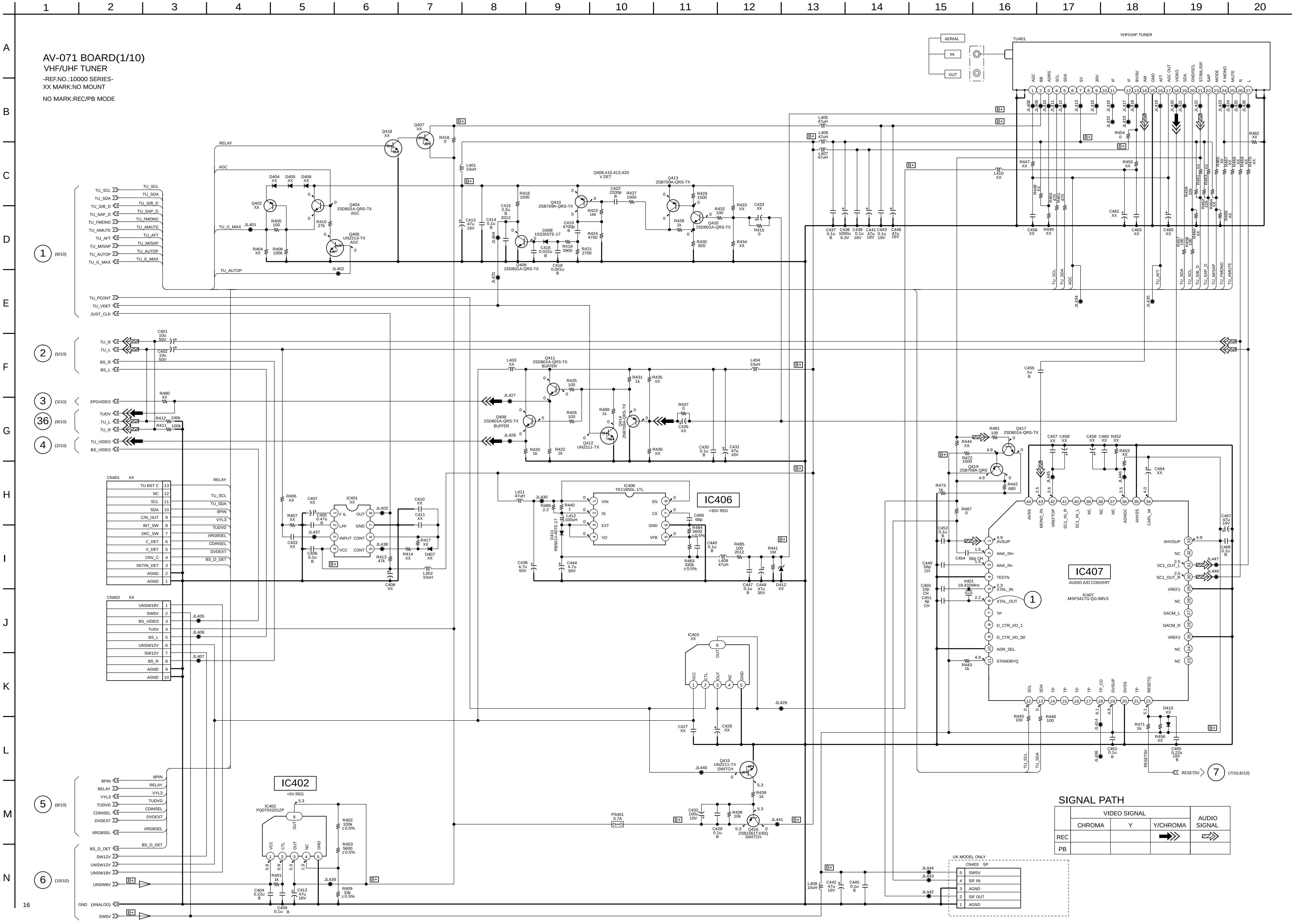
There are a few cases that the part printed on this diagram isn't mounted in this model.

AV-071 BOARD (SIDE B)

D302	D-4	Q107	D-1
D351	D-2	Q108	D-1
D411	F-11		
D605	I-9	Q301	D-4
D606	H-8	Q302	D-4
D607	I-9	Q303	D-4
D608	I-9	Q308	C-2
D609	I-9	Q310	B-5
D610	I-8	Q311	B-5
D612	A-10	Q312	B-5
D705	C-7	Q313	B-5
D706	D-8	Q314	B-4
D801	B-7	Q315	B-9
D802	B-4	Q316	B-10
D803	B-3	Q317	B-10
D808	B-4	Q420	E-11
D809	B-3	Q606	I-9
D810	A-7	Q607	I-9
D811	B-7	Q608	I-9
D812	B-6	Q610	H-8
D813	B-6	Q611	I-8
D1201	B-1	Q706	D-8
D1202	A-2	Q708	D-7
		Q711	C-7
IC101	F-2	Q712	B-7
IC102	E-3	Q715	C-6
IC105	D-2	Q809	C-3
IC302	E-3	Q810	C-3
IC303	D-5	Q811	C-2
IC304	C-5	Q812	C-2
IC602	G-11	Q813	C-2
IC605	I-11	Q814	C-2
IC801	A-1	Q815	B-3
IC802	B-3	Q816	B-3

For Schematic Diagram

- Refer to page 4-7 for printed wiring board.
- Refer to page 4-6 for waveforms.


AV-071 BOARD(1/10)
VHF/UHF TUNER
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
TU401
VHF/UHF TUNER
AERIAL
IN
OUT
IC406
+30V REG
IC406 TK11850L-1TL
IC407
AUDIO A/D CONVERT
IC407 MSP3417G-QG-B8V3
IC402
+5V REG
IC402 PQ070XZ01ZP
IC401
IC403
CN401
CN402
CN403 5P
UK MODEL ONLY
Q408,410,413,420 V DET
Q409 2SD601A-QRS-TX BUFFER
Q411 2SD601A-QRS-TX BUFFER
Q415 UN2211-TX SWITCH
Q416 2SB1561T100Q SWITCH
RESET5V
(7/10,8/10)
1 (8/10)
2 (5/10)
3 (3/10)
36 (9/10)
4 (2/10)
5 (8/10)
6 (10/10)
GND (ANALOG)
16

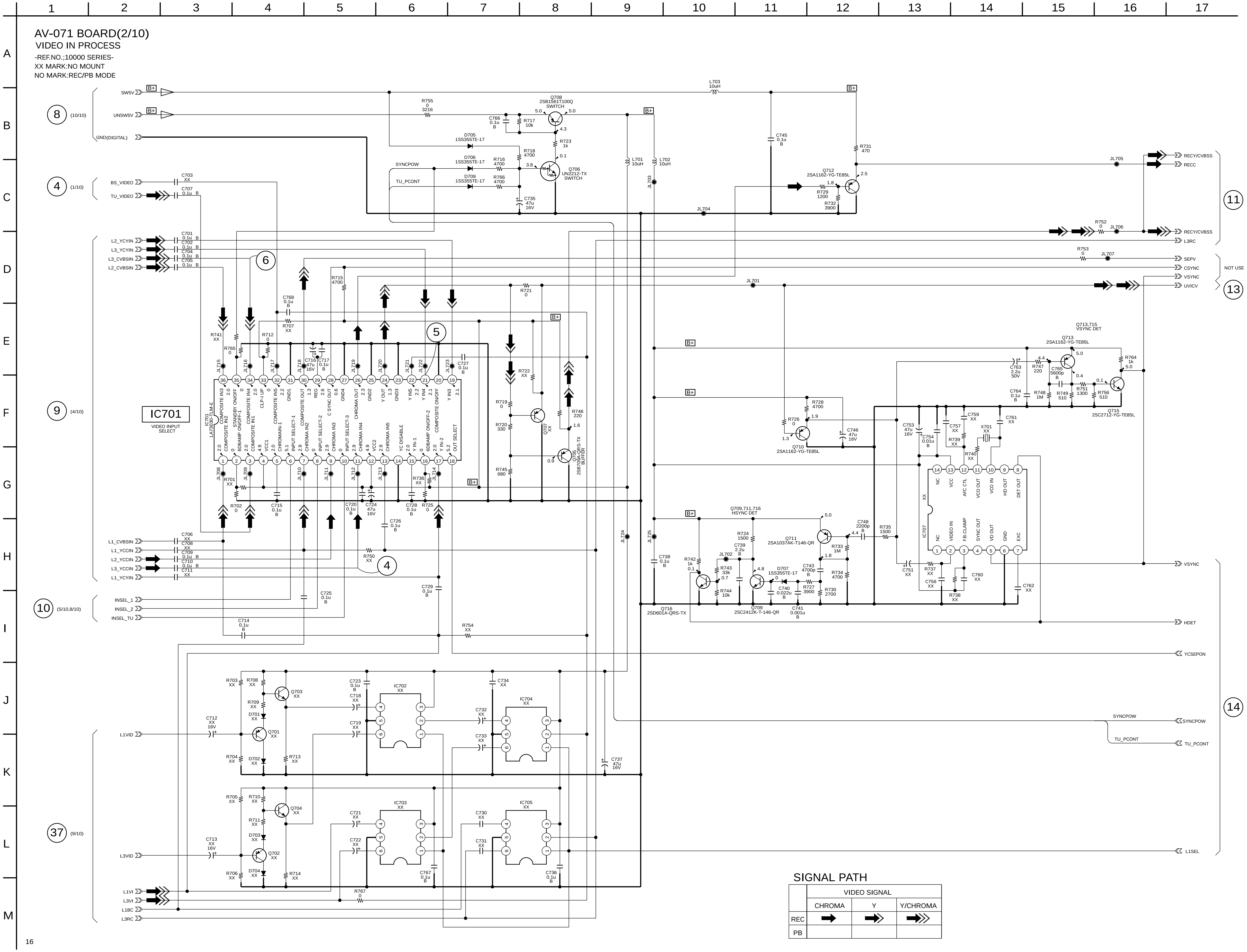
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	⇨
PB				

VHF/UHF TUNER
AV-071 (1/10)

For Schematic Diagram

- Refer to page 4-7 for printed wiring board.
- Refer to page 4-6 for waveforms.


AV-071 BOARD(2/10)
VIDEO IN PROCESS
-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC701
VIDEO INPUT SELECT
IC701 LA73030-TLM-E
Q708 2SB1561T100Q SWITCH
Q706 UN2212-TX SWITCH
Q712 2SA1162-YG-TE85L
Q713,715 VSYNC DET
Q713 2SA1162-YG-TE85L
Q715 2SC2712-YG-TE85L
Q710 2SA1162-YG-TE85L
Q705 2SB709A-QRS-TX BUFFER
Q709,711,716 HSYNC DET
Q711 2SA1037AK-T146-QR
Q709 2SC2412K-T-146-QR
Q716 2SD601A-QRS-TX
IC707
IC702
IC703
IC704
IC705
SW5V
UNSW5V
GND(DIGITAL)
BS_VIDEO
TU_VIDEO
L2_YCYIN
L3_YCYIN
L3_CVBSIN
L2_CVBSIN
L1_CVBSIN
L1_YCCIN
L2_YCCIN
L3_YCCIN
L1_YCYIN
INSEL_1
INSEL_2
INSEL_TU
L1VID
L3VID
L1VI
L3VI
L1BC
L3RC
SYNCPOW
TU_PCONT
RECY/CVBSS
RECC
RECY/CVBSS
L3RC
SEPV
CSYNC
VSYNC
UVICV
NOT USE
VSYNC
HDET
YCSEPON
SYNCPOW
TU_PCONT
L1SEL
8 (10/10)
4 (1/10)
9 (4/10)
10 (5/10,8/10)
37 (9/10)
11 (3/10)
13 (7/10,9/10)
14 (8/10)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J K L M
16

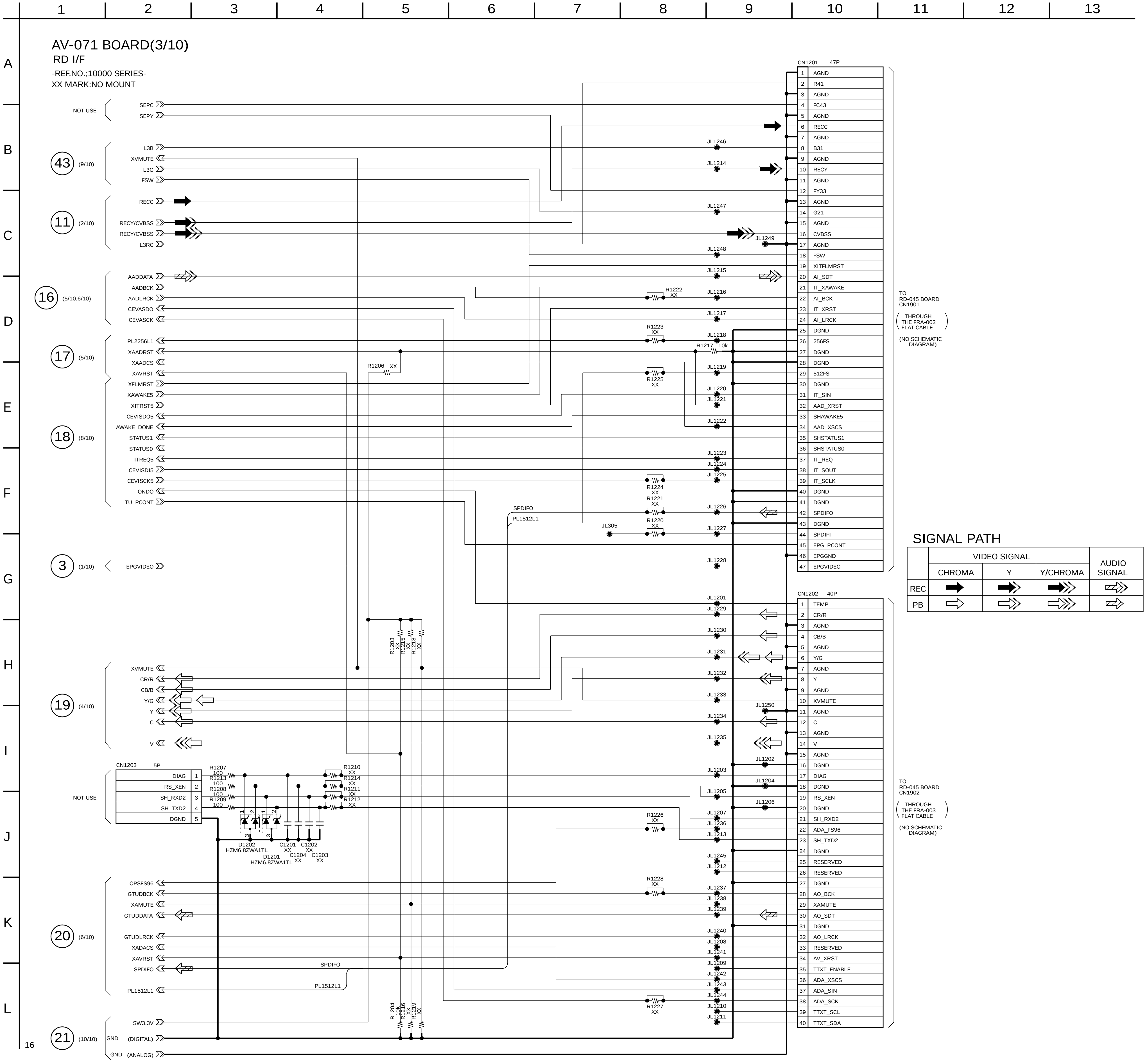
SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡›	➡››
PB			

VIDEO IN PROCESS
AV-071 (2/10)

For Schematic Diagram

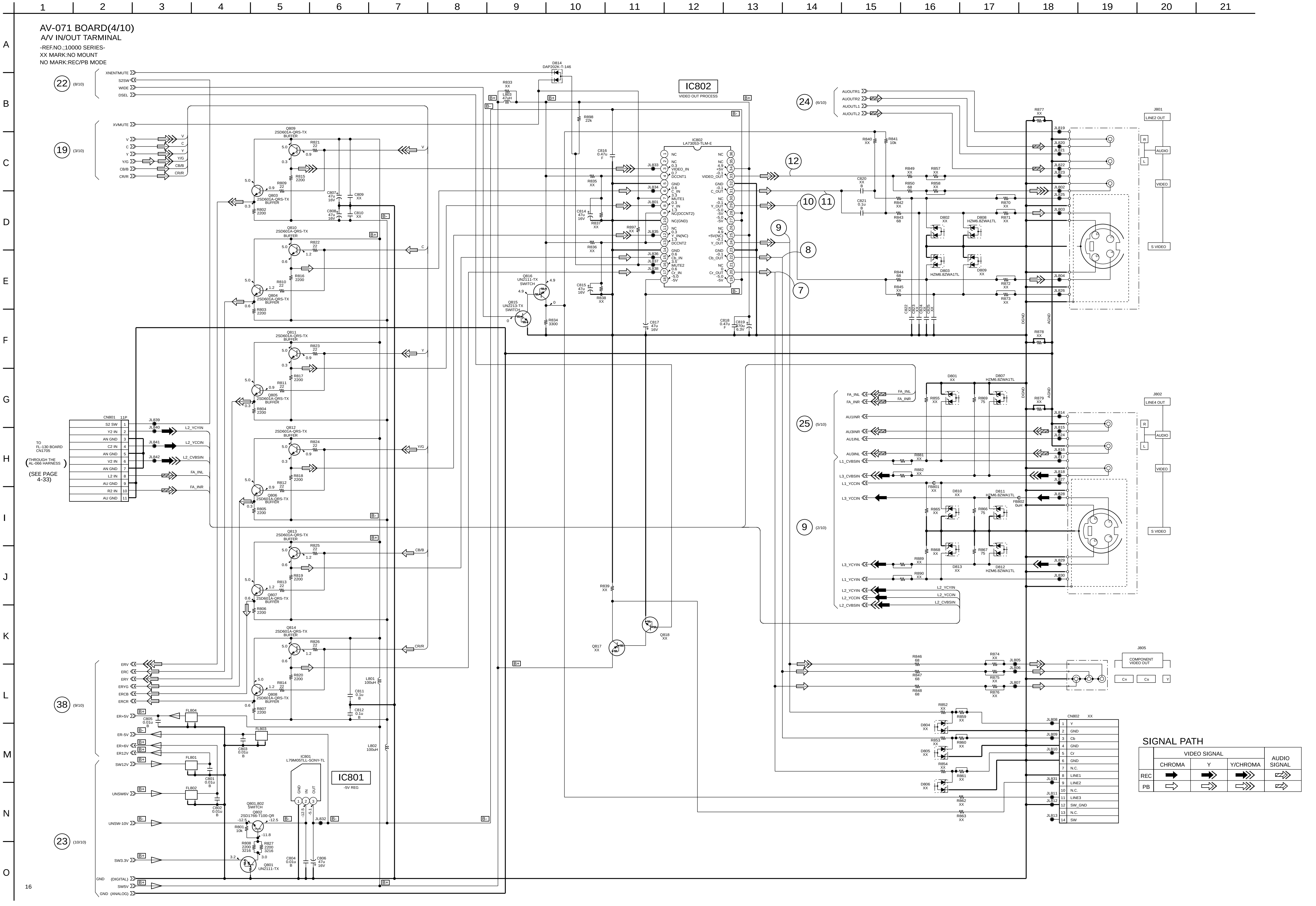
- Refer to page 4-7 for printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
K
L
AV-071 BOARD(3/10)
RD I/F
-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT
NOT USE
SEPC
SEPY
43
(9/10)
L3B
XVMUTE
L3G
FSW
11
(2/10)
RECC
RECY/CVBSS
RECY/CVBSS
L3RC
16
(5/10,6/10)
AADDATA
AADBCK
AADLRCK
CEVASDO
CEVASCK
17
(5/10)
PL2256L1
XAADRST
XAADCS
XAVRST
XFLMRST
XAWAKE5
XITRST5
CEVISDO5
AWAKE_DONE
STATUS1
STATUS0
ITREQ5
CEVISDI5
CEVISCK5
ONDO
TU_PCONT
18
(8/10)
3
(1/10)
EPGVIDEO
19
(4/10)
XVMUTE
CR/R
CB/B
Y/G
Y
C
V
CN1203 5P
NOT USE
DIAG 1
RS_XEN 2
SH_RXD2 3
SH_TXD2 4
DGND 5
R1207 100
R1213 100
R1208 100
R1209 100
R1210 XX
R1214 XX
R1211 XX
R1212 XX
D1202 HZM6.8ZWA1TL
D1201 HZM6.8ZWA1TL
C1201 XX
C1202 XX
C1204 XX
C1203 XX
20
(6/10)
OPSFS96
GTUDBCK
XAMUTE
GTUDDATA
GTUDLRCK
XADACS
XAVRST
SPDIFO
PL1512L1
21
(10/10)
SW3.3V
GND (DIGITAL)
GND (ANALOG)
16
R1206 XX
R1203 XX
R1215 XX
R1218 XX
R1204 XX
R1216 XX
R1219 XX
SPDIFO
PL1512L1
JL305
R1222 XX
R1223 XX
R1217 10k
R1225 XX
R1224 XX
R1221 XX
R1220 XX
R1226 XX
R1228 XX
R1227 XX
JL1246
JL1214
JL1247
JL1249
JL1248
JL1215
JL1216
JL1217
JL1218
JL1219
JL1220
JL1221
JL1222
JL1223
JL1224
JL1225
JL1226
JL1227
JL1228
JL1201
JL1229
JL1230
JL1231
JL1232
JL1233
JL1250
JL1234
JL1235
JL1202
JL1203
JL1204
JL1205
JL1206
JL1207
JL1236
JL1213
JL1245
JL1212
JL1237
JL1238
JL1239
JL1240
JL1208
JL1241
JL1209
JL1242
JL1243
JL1244
JL1210
JL1211
CN1201 47P
1 AGND
2 R41
3 AGND
4 FC43
5 AGND
6 RECC
7 AGND
8 B31
9 AGND
10 RECY
11 AGND
12 FY33
13 AGND
14 G21
15 AGND
16 CVBSS
17 AGND
18 FSW
19 XITFLMRST
20 AI_SDT
21 IT_XAWAKE
22 AI_BCK
23 IT_XRST
24 AI_LRCK
25 DGND
26 256FS
27 DGND
28 DGND
29 512FS
30 DGND
31 IT_SIN
32 AAD_XRST
33 SHAWAKE5
34 AAD_XSCS
35 SHSTATUS1
36 SHSTATUS0
37 IT_REQ
38 IT_SOUT
39 IT_SCLK
40 DGND
41 DGND
42 SPDIFO
43 DGND
44 SPDIFI
45 EPG_PCONT
46 EPGGND
47 EPGVIDEO
TO RD-045 BOARD CN1901
THROUGH THE FRA-002 FLAT CABLE
(NO SCHEMATIC DIAGRAM)
CN1202 40P
1 TEMP
2 CR/R
3 AGND
4 CB/B
5 AGND
6 Y/G
7 AGND
8 Y
9 AGND
10 XVMUTE
11 AGND
12 C
13 AGND
14 V
15 AGND
16 DGND
17 DIAG
18 DGND
19 RS_XEN
20 DGND
21 SH_RXD2
22 ADA_FS96
23 SH_TXD2
24 DGND
25 RESERVED
26 RESERVED
27 DGND
28 AO_BCK
29 XAMUTE
30 AO_SDT
31 DGND
32 AO_LRCK
33 RESERVED
34 AV_XRST
35 TTXT_ENABLE
36 ADA_XSCS
37 ADA_SIN
38 ADA_SCK
39 TTXT_SCL
40 TTXT_SDA
TO RD-045 BOARD CN1902
THROUGH THE FRA-003 FLAT CABLE
(NO SCHEMATIC DIAGRAM)

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	⇨
PB	⇨	⇨	⇨	⇨

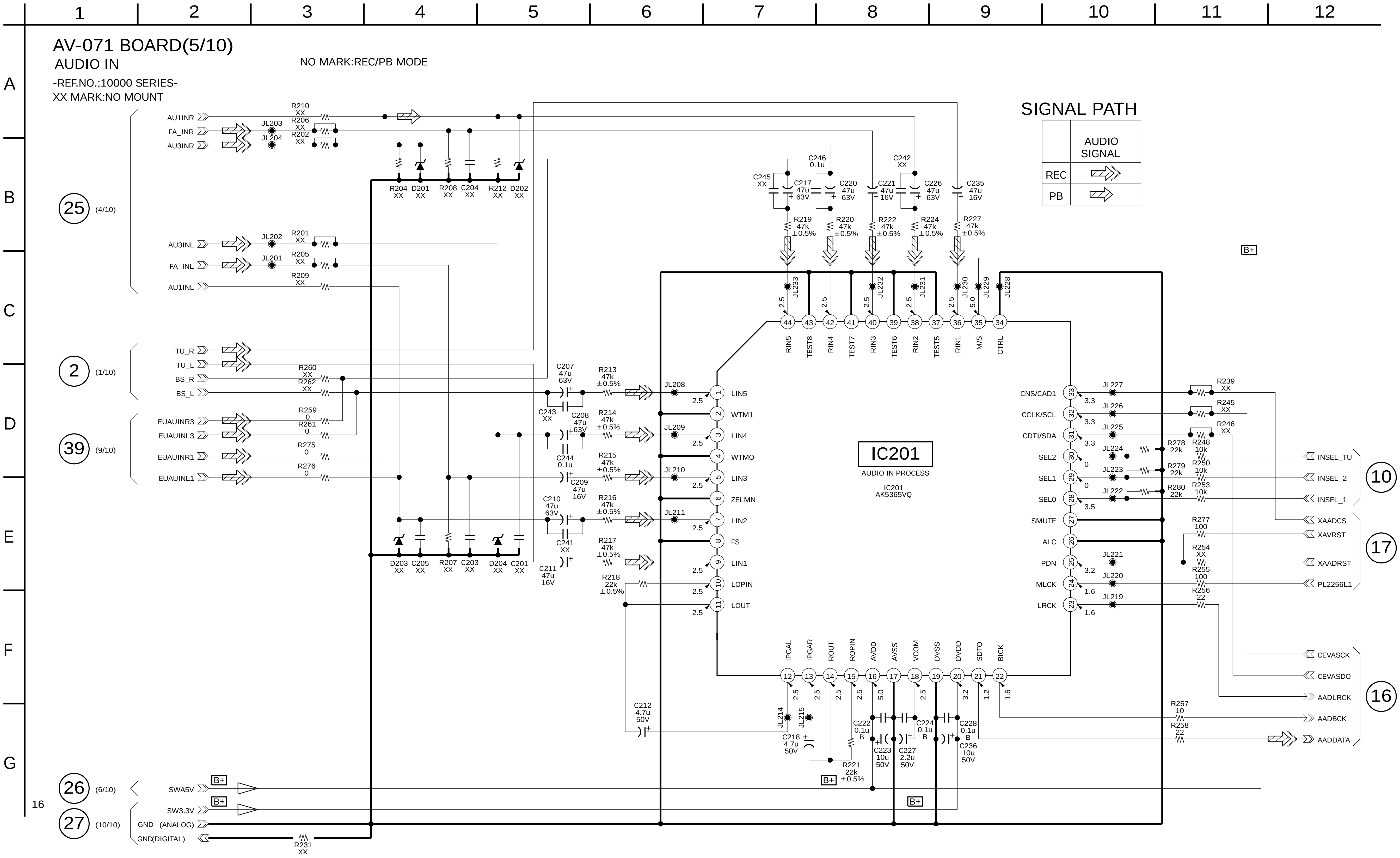
For Schematic Diagram
- Refer to page 4-7 for printed wiring board.
- Refer to page 4-6 for waveforms.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
A B C D E F G H I J K L M N O
AV-071 BOARD(4/10)
A/V IN/OUT TARMINAL
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC802
VIDEO OUT PROCESS
IC802 LA73053-TLM-E
D814 DAP202K-T-146
Q809 2SD601A-QRS-TX BUFFER
Q803 2SD601A-QRS-TX BUFFER
Q810 2SD601A-QRS-TX BUFFER
Q804 2SD601A-QRS-TX BUFFER
Q811 2SD601A-QRS-TX BUFFER
Q805 2SD601A-QRS-TX BUFFER
Q812 2SD601A-QRS-TX BUFFER
Q806 2SD601A-QRS-TX BUFFER
Q813 2SD601A-QRS-TX BUFFER
Q807 2SD601A-QRS-TX BUFFER
Q814 2SD601A-QRS-TX BUFFER
Q808 2SD601A-QRS-TX BUFFER
Q816 UN2111-TX SWITCH
Q815 UN2213-TX SWITCH
Q817
Q818
IC801 L79M05TLL-SONY-TL
IC801
-5V REG
Q801,802 SWITCH
Q802 2SD1766-T100-QR
Q801 UN2111-TX
CN801 11P
TO FL-130 BOARD CN1705
(THROUGH THE AL-066 HARNESS)
(SEE PAGE 4-33)
S2 SW
Y2 IN
AN GND
C2 IN
AN GND
V2 IN
AN GND
L2 IN
AU GND
R2 IN
AU GND
22 (8/10)
19 (3/10)
38 (9/10)
23 (10/10)
24 (6/10)
25 (5/10)
9 (2/10)
12
10 11
9
8
7
J801 LINE2 OUT
J802 LINE4 OUT
AUDIO
VIDEO
S VIDEO
J805 COMPONENT VIDEO OUT
CN802 XX
1 Y
2 GND
3 Cb
4 GND
5 Cr
6 GND
7 N.C.
8 LINE1
9 LINE2
10 N.C.
11 LINE3
12 SW_GND
13 N.C.
14 SW
16

SIGNAL PATH

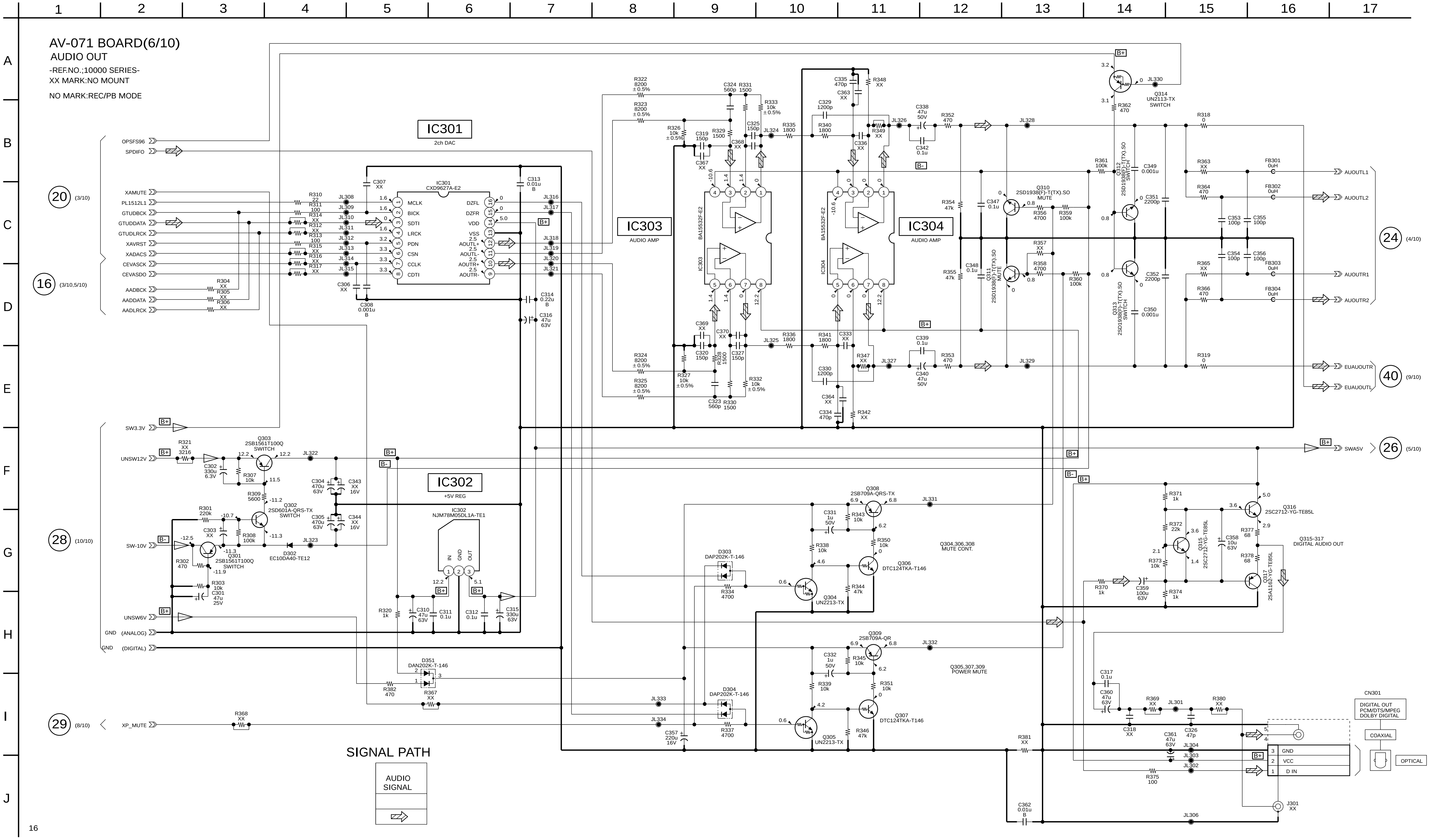
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	⇨
PB	⇨	⇨	⇨	⇨

For Schematic Diagram
- Refer to page 4-7 for printed wiring board.

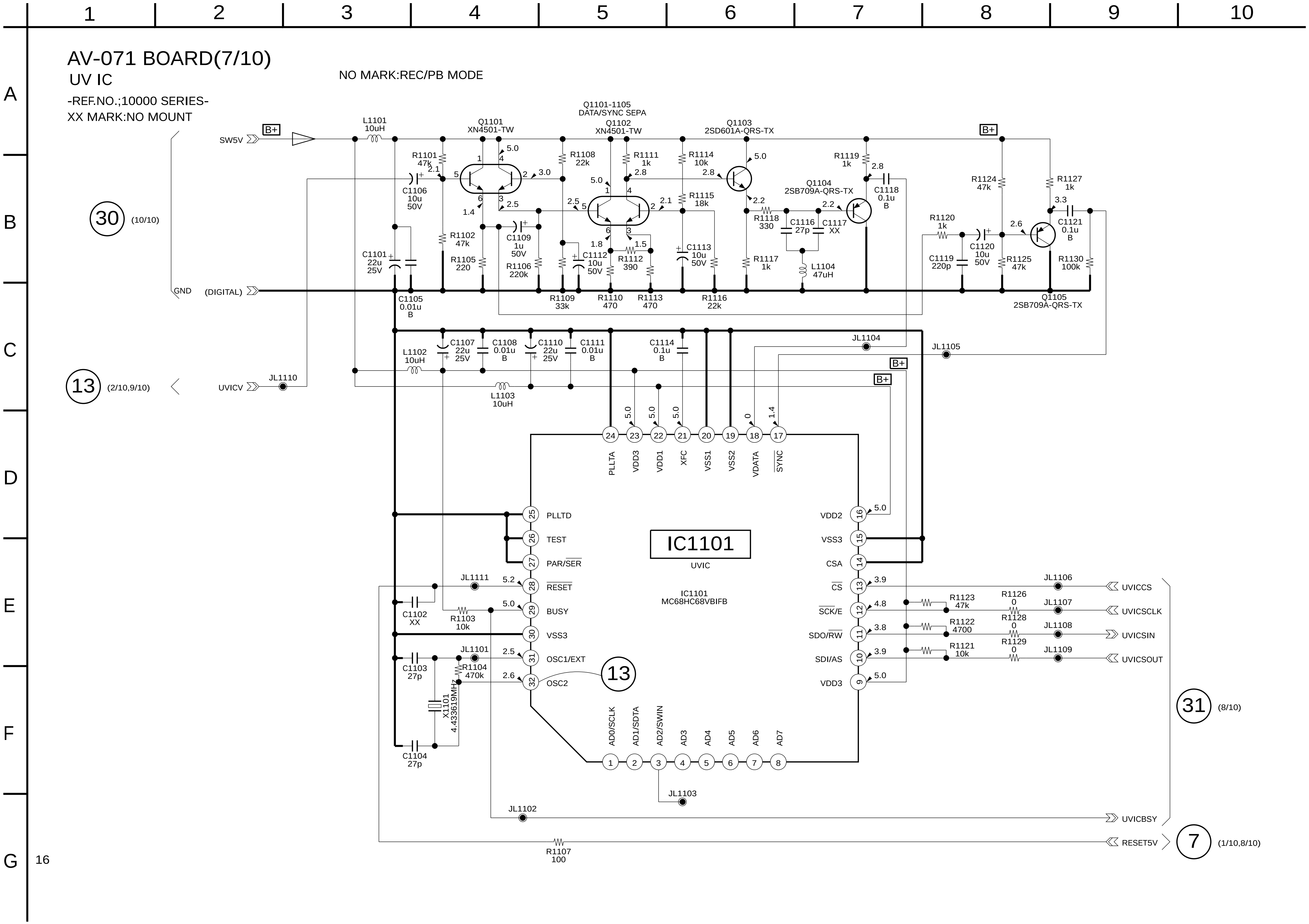

1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
AV-071 BOARD(5/10)
AUDIO IN
-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
SIGNAL PATH
AUDIO SIGNAL
REC
PB
25 (4/10)
AU1INR
FA_INR
AU3INR
AU3INL
FA_INL
AU1INL
JL203
JL204
JL202
JL201
R210 XX
R206 XX
R202 XX
R201 XX
R205 XX
R209 XX
R204 XX
D201 XX
R208 XX
C204 XX
R212 XX
D202 XX
2 (1/10)
TU_R
TU_L
BS_R
BS_L
R260 XX
R262 XX
39 (9/10)
EUAUINR3
EUAUINL3
EUAUINR1
EUAUINL1
R259 0
R261 0
R275 0
R276 0
C207 47u 63V
C243 XX
C208 47u 63V
C244 0.1u
C209 47u 16V
C210 47u 63V
C241 XX
C211 47u 16V
R213 47k ±0.5%
R214 47k ±0.5%
R215 47k ±0.5%
R216 47k ±0.5%
R217 47k ±0.5%
R218 22k ±0.5%
D203 XX
C205 XX
R207 XX
C203 XX
D204 XX
C201 XX
JL208
JL209
JL210
JL211
C245 XX
C246 0.1u
C217 47u 63V
C220 47u 63V
C242 XX
C221 47u 16V
C226 47u 63V
C235 47u 16V
R219 47k ±0.5%
R220 47k ±0.5%
R222 47k ±0.5%
R224 47k ±0.5%
R227 47k ±0.5%
JL233
JL232
JL231
JL230
JL229
JL228
B+
RIN5
TEST8
RIN4
TEST7
RIN3
TEST6
RIN2
TEST5
RIN1
M/S
CTRL
LIN5
WTM1
LIN4
WTMO
LIN3
ZELMN
LIN2
FS
LIN1
LOPIN
LOUT
IC201
AUDIO IN PROCESS
IC201 AK5365VQ
CNS/CAD1
CCLK/SCL
CDTI/SDA
SEL2
SEL1
SEL0
SMUTE
ALC
PDN
MLCK
LRCK
IPGAL
IPGAR
ROUT
ROPIN
AVDD
AVSS
VCOM
DVSS
DVDD
SDTO
BICK
JL227
JL226
JL225
JL224
JL223
JL222
JL221
JL220
JL219
R239 XX
R245 XX
R246 XX
R278 22k
R248 10k
R279 22k
R250 10k
R280 22k
R253 10k
R277 100
R254 XX
R255 100
R256 22
INSEL_TU
INSEL_2
INSEL_1
10 (2/10,8/10)
XAADCS
XAVRST
XAADRST
PL2256L1
17 (3/10)
CEVASCK
CEVASDO
AADLRCK
AADBCK
AADDATA
16 (3/10,6/10)
R257 10
R258 22
C212 4.7u 50V
JL214
JL215
C218 4.7u 50V
R221 22k ±0.5%
C222 0.1u B
C223 10u 50V
C227 2.2u 50V
C224 0.1u B
C228 0.1u B
C236 10u 50V
26 (6/10)
SWA5V
SW3.3V
27 (10/10)
GND (ANALOG)
GND(DIGITAL)
R231 XX
16

For Schematic Diagram

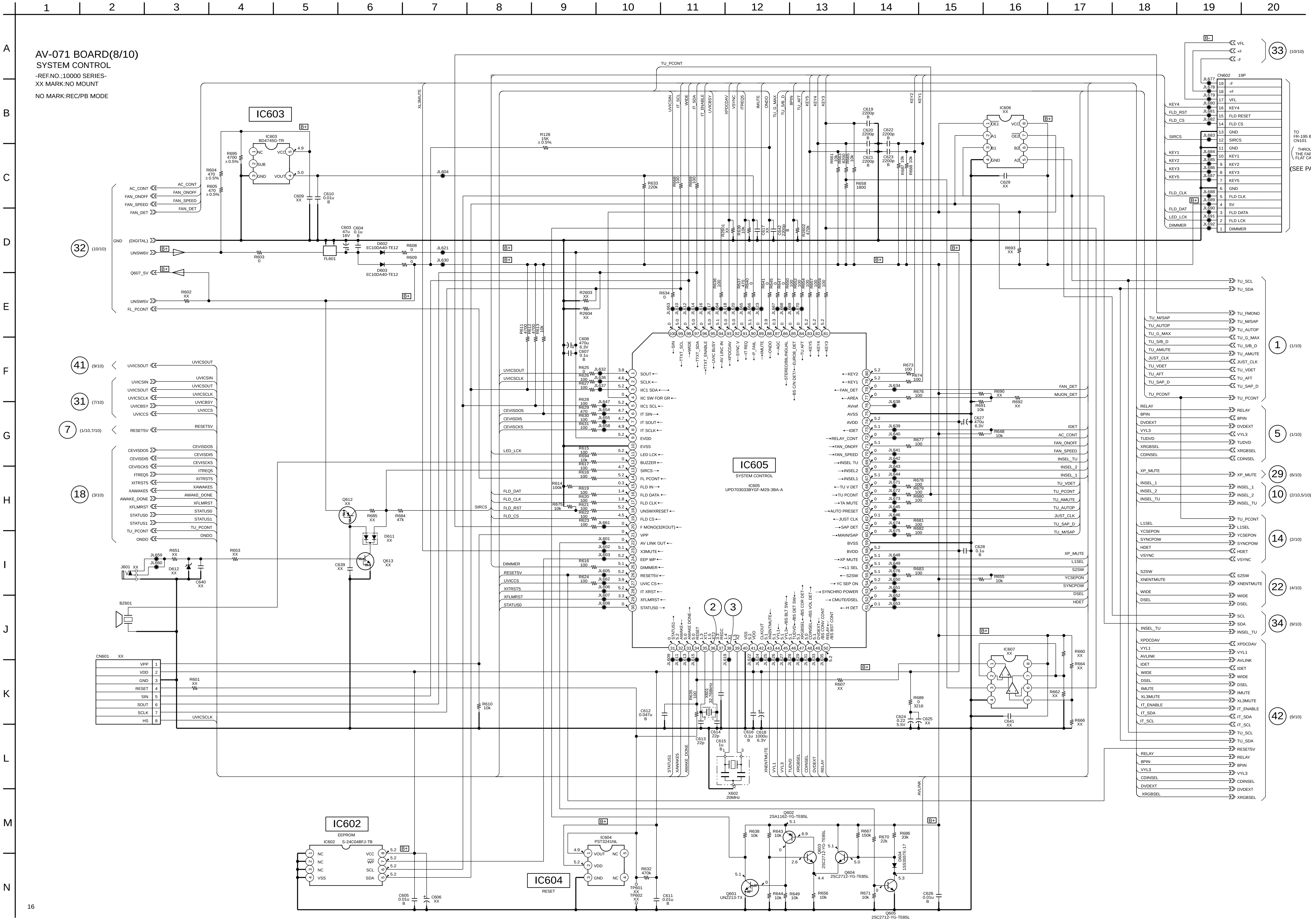
- Refer to page 4-7 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J
AV-071 BOARD(6/10)
AUDIO OUT
-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC301
2ch DAC
IC301
CXD9627A-E2
IC302
+5V REG
IC302
NJM78M05DL1A-TE1
IC303
AUDIO AMP
IC304
AUDIO AMP
BA15532F-E2
20 (3/10)
16 (3/10,5/10)
28 (10/10)
29 (8/10)
24 (4/10)
40 (9/10)
26 (5/10)
OPSFS96
SPDIFO
XAMUTE
PL1512L1
GTUDBCK
GTUDDATA
GTUDLRCK
XAVRST
XADACS
CEVASCK
CEVASDO
AADBCK
AADDATA
AADLRCK
SW3.3V
UNSW12V
SW-10V
UNSW6V
GND (ANALOG)
GND (DIGITAL)
XP_MUTE
AUOUTL1
AUOUTL2
AUOUTR1
AUOUTR2
EUAUOUTR
EUAUOUTL
SWA5V
Q301 2SB1561T100Q SWITCH
Q302 2SD601A-QRS-TX SWITCH
Q303 2SB1561T100Q SWITCH
D302 EC10DA40-TE12
Q304 UN2213-TX
Q305 UN2213-TX
Q306 DTC124TKA-T146
Q307 DTC124TKA-T146
Q308 2SB709A-QRS-TX
Q309 2SB709A-QR
Q304,306,308 MUTE CONT.
Q305,307,309 POWER MUTE
D303 DAP202K-T-146
D304 DAP202K-T-146
D351 DAN202K-T-146
Q310 2SD1938(F)-T(TX).SO MUTE
Q311 2SD1938(F)-T(TX).SO MUTE
Q312 2SD1938(F)-T(TX).SO SWITCH
Q313 2SD1938(F)-T(TX).SO SWITCH
Q314 UN2113-TX SWITCH
Q315 2SC2712-YG-TE85L
Q316 2SC2712-YG-TE85L
Q317 2SA1162-YG-TE85L
Q315-317 DIGITAL AUDIO OUT
CN301
DIGITAL OUT PCM/DTS/MPEG DOLBY DIGITAL
COAXIAL
OPTICAL
GND
VCC
D IN
J301 XX
SIGNAL PATH
AUDIO SIGNAL
16

For Schematic Diagram
- Refer to page 4-7 for printed wiring board.
- Refer to page 4-6 for waveforms.


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
16
AV-071 BOARD(7/10)
UV IC
-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
30
(10/10)
13
(2/10,9/10)
SW5V
GND
(DIGITAL)
UVICV
B+
L1101
10uH
Q1101
XN4501-TW
Q1101-1105
DATA/SYNC SEPA
Q1102
XN4501-TW
Q1103
2SD601A-QRS-TX
Q1104
2SB709A-QRS-TX
Q1105
2SB709A-QRS-TX
R1101
47k
R1102
47k
R1105
220
R1106
220k
R1108
22k
R1109
33k
R1110
470
R1111
1k
R1112
390
R1113
470
R1114
10k
R1115
18k
R1116
22k
R1117
1k
R1118
330
R1119
1k
R1120
1k
R1124
47k
R1125
47k
R1127
1k
R1130
100k
C1101
22u
25V
C1105
0.01u
B
C1106
10u
50V
C1109
1u
50V
C1112
10u
50V
C1113
10u
50V
C1116
27p
C1117
XX
C1118
0.1u
B
C1119
220p
C1120
10u
50V
C1121
0.1u
B
L1104
47uH
C1107
22u
25V
C1108
0.01u
B
C1110
22u
25V
C1111
0.01u
B
C1114
0.1u
B
L1102
10uH
L1103
10uH
JL1110
JL1104
JL1105
5.0
3.0
2.1
2.5
1.4
2.8
2.2
1.8
1.5
3.3
2.6
0
1.4
24
23
22
21
20
19
18
17
PLLTA
VDD3
VDD1
XFC
VSS1
VSS2
VDATA
SYNC
25 PLLTD
26 TEST
27 PAR/SER
28 RESET
29 BUSY
30 VSS3
31 OSC1/EXT
32 OSC2
IC1101
UVIC
IC1101
MC68HC68VBIFB
VDD2 16
VSS3 15
CSA 14
CS 13
SCK/E 12
SDO/RW 11
SDI/AS 10
VDD3 9
AD0/SCLK
AD1/SDTA
AD2/SWIN
AD3
AD4
AD5
AD6
AD7
1
2
3
4
5
6
7
8
JL1111
5.2
C1102
XX
R1103
10k
JL1101
C1103
27p
R1104
470k
X1101
4.433619MHz
C1104
27p
13
JL1103
JL1102
R1107
100
3.9
4.8
3.8
3.9
5.0
R1123
47k
R1122
4700
R1121
10k
R1126
0
R1128
0
R1129
0
JL1106
JL1107
JL1108
JL1109
UVICCS
UVICSCLK
UVICSIN
UVICSOUT
UVICBSY
RESET5V
31
(8/10)
7
(1/10,8/10)

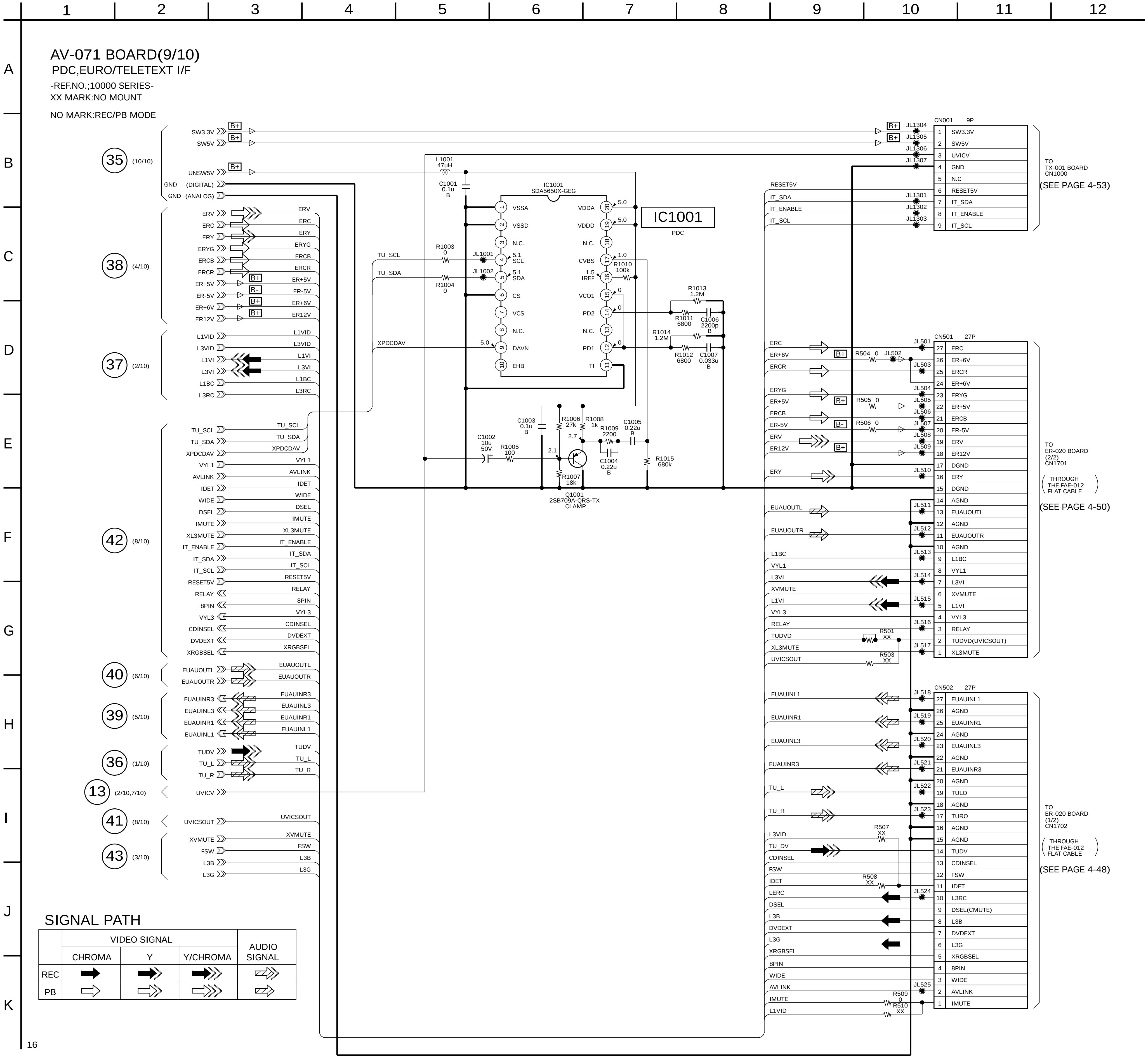
For Schematic Diagram
- Refer to page 4-7 for printed wiring board.
- Refer to page 4-6 for waveforms.


AV-071 BOARD(8/10)
SYSTEM CONTROL
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC603
BD4745G-TR
IC605
SYSTEM CONTROL
UPD703033BYGF-M29-3BA-A
IC606
IC607
IC602
EEPROM
S-24C04BFJ-TB
IC604
PST3241NL
RESET
CN602 19P
TO FR-195 BOARD CN101
THROUGH THE FAR-003 FLAT CABLE
(SEE PAGE 4-39)
CN601
X601 32.768kHz
X602 20MHz
Q601 UN2213-TX
Q602 2SA1162-YG-TE85L
Q603 2SC2712-YG-TE85L
Q604 2SC2712-YG-TE85L
Q605 2SC2712-YG-TE85L
BZ601
J601

SYSTEM CONTROL
AV-071 (8/10)

For Schematic Diagram

- Refer to page 4-7 for printed wiring board.

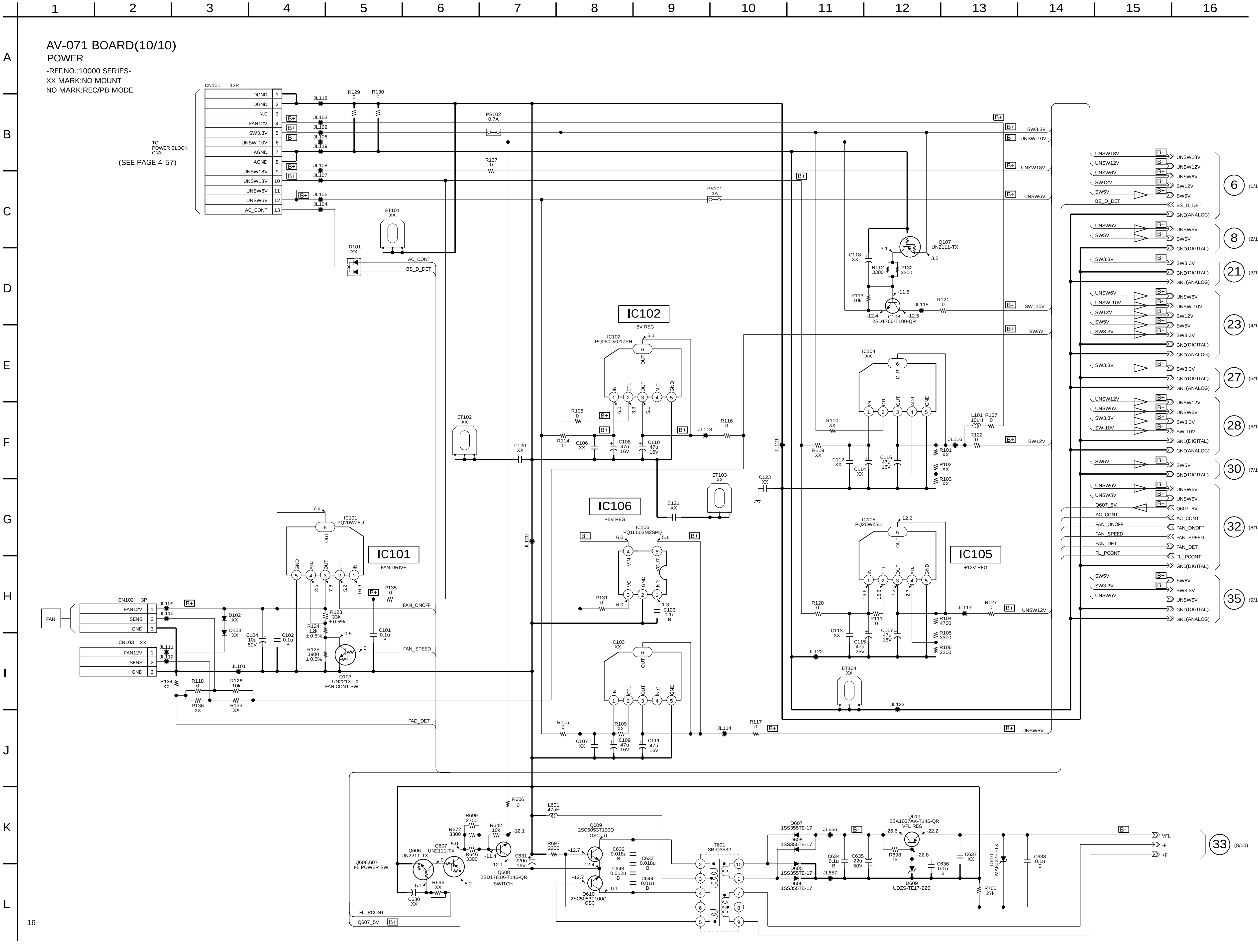

1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
K
AV-071 BOARD(9/10)
PDC,EURO/TELETEXT I/F
-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
35 (10/10)
SW3.3V
SW5V
UNSW5V
GND (DIGITAL)
GND (ANALOG)
B+
38 (4/10)
ERV
ERC
ERY
ERYG
ERCB
ERCR
ER+5V
ER-5V
ER+6V
ER12V
B-
37 (2/10)
L1VID
L3VID
L1VI
L3VI
L1BC
L3RC
42 (8/10)
TU_SCL
TU_SDA
XPDCDAV
VYL1
AVLINK
IDET
WIDE
DSEL
IMUTE
XL3MUTE
IT_ENABLE
IT_SDA
IT_SCL
RESET5V
RELAY
8PIN
VYL3
CDINSEL
DVDEXT
XRGBSEL
40 (6/10)
EUAUOUTL
EUAUOUTR
39 (5/10)
EUAUINR3
EUAUINL3
EUAUINR1
EUAUINL1
36 (1/10)
TUDV
TU_L
TU_R
13 (2/10,7/10)
UVICV
41 (8/10)
UVICSOUT
43 (3/10)
XVMUTE
FSW
L3B
L3G
L1001 47uH
C1001 0.1u B
IC1001 SDA5650X-GEG
IC1001
PDC
VSSA
VSSD
N.C.
5.1 SCL
5.1 SDA
CS
VCS
N.C.
DAVN
EHB
VDDA
VDDD
N.C.
CVBS
1.5 IREF
VCO1
PD2
N.C.
PD1
TI
5.0
1.0
0
R1003 0
R1004 0
JL1001
JL1002
R1010 100k
R1013 1.2M
R1011 6800
C1006 2200p B
R1014 1.2M
R1012 6800
C1007 0.033u B
C1003 0.1u B
C1002 10u 50V
R1005 100
R1006 27k
R1008 1k
R1009 2200
C1005 0.22u B
C1004 0.22u B
R1007 18k
R1015 680k
2.1
2.7
Q1001 2SB709A-QRS-TX CLAMP
JL1304
JL1305
JL1306
JL1307
JL1301
JL1302
JL1303
CN001 9P
1 SW3.3V
2 SW5V
3 UVICV
4 GND
5 N.C
6 RESET5V
7 IT_SDA
8 IT_ENABLE
9 IT_SCL
TO TX-001 BOARD CN1000
(SEE PAGE 4-53)
CN501 27P
27 ERC
26 ER+6V
25 ERCR
24 ER+6V
23 ERYG
22 ER+5V
21 ERCB
20 ER-5V
19 ERV
18 ER12V
17 DGND
16 ERY
15 DGND
14 AGND
13 EUAUOUTL
12 AGND
11 EUAUOUTR
10 AGND
9 L1BC
8 VYL1
7 L3VI
6 XVMUTE
5 L1VI
4 VYL3
3 RELAY
2 TUDVD(UVICSOUT)
1 XL3MUTE
R504 0
JL501
JL502
JL503
JL504
R505 0
JL505
JL506
R506 0
JL507
JL508
JL509
JL510
JL511
JL512
JL513
JL514
JL515
JL516
JL517
R501 XX
R503 XX
TUDVD
UVICSOUT
TO ER-020 BOARD (2/2) CN1701
THROUGH THE FAE-012 FLAT CABLE
(SEE PAGE 4-50)
CN502 27P
27 EUAUINL1
26 AGND
25 EUAUINR1
24 AGND
23 EUAUINL3
22 AGND
21 EUAUINR3
20 AGND
19 TULO
18 AGND
17 TURO
16 AGND
15 AGND
14 TUDV
13 CDINSEL
12 FSW
11 IDET
10 L3RC
9 DSEL(CMUTE)
8 L3B
7 DVDEXT
6 L3G
5 XRGBSEL
4 8PIN
3 WIDE
2 AVLINK
1 IMUTE
JL518
JL519
JL520
JL521
JL522
JL523
JL524
JL525
R507 XX
R508 XX
R509 0
R510 XX
TU_DV
LERC
L1VID
TO ER-020 BOARD (1/2) CN1702
THROUGH THE FAE-012 FLAT CABLE
(SEE PAGE 4-48)
16

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	⇛
PB	⇨	⇨⇨	⇨⇨⇨	⇛

For Schematic Diagram

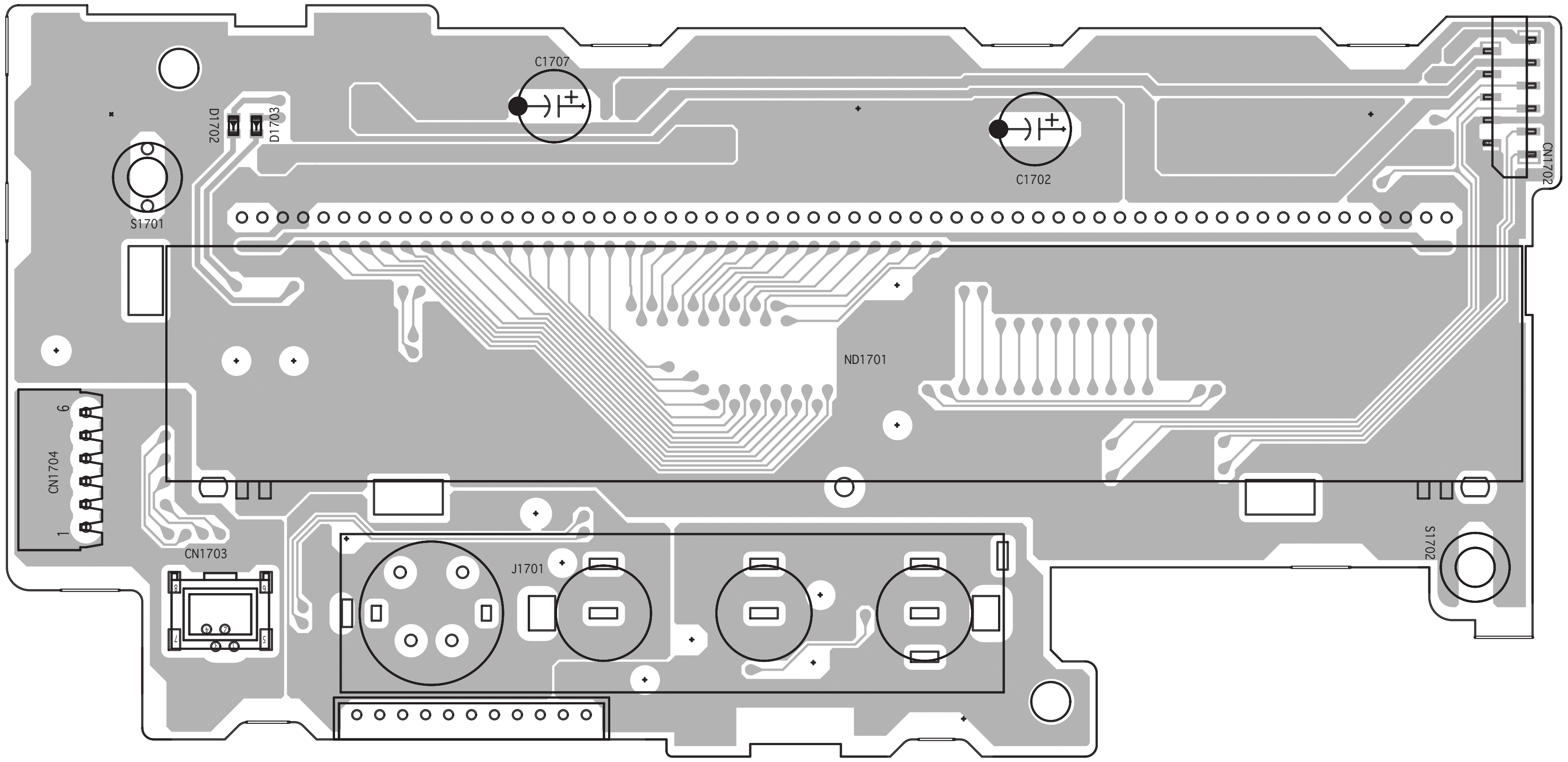
- Refer to page 4-7 for printed wiring board.


AV-071 BOARD(10/10)
POWER
-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
CN101 13P
DGND
N.C
FAN12V
SW3.3V
UNSW-10V
AGND
UNSW18V
UNSW13V
UNSW6V
AC_CONT
TO POWER BLOCK CN3
(SEE PAGE 4-57)
IC102
+5V REG
IC102 PQ050DZ01ZPH
IC101
FAN DRIVE
IC101 PQ20WZ5U
IC106
+5V REG
IC106 PQ1L503M2SPQ
IC103
IC104
IC105
+12V REG
IC105 PQ20WZ5U
Q107 UN2111-TX
Q108 2SD1766-T100-QR
Q103 UN2213-TX
FAN CONT SW
CN102 3P
CN103 XX
FAN
FAN12V
SENS
GND
FAN_ONOFF
FAN_SPEED
FAD_DET
AC_CONT
BS_D_DET
PS102 0.7A
PS101 1A
L101 10uH
Q606,607 FL POWER SW
Q606 UN2211-TX
Q607 UN2111-TX
Q608 2SD1781K-T146-QR
SWITCH
Q609 2SC5053T100Q
OSC
Q610 2SC5053T100Q
OSC
L601 47uH
T601 SB-Q3532
Q611 2SA1037AK-T146-QR
VFL REG
D605 1SS355TE-17
D606 1SS355TE-17
D607 1SS355TE-17
D608 1SS355TE-17
D609 UDZS-TE17-22B
D610 MA8082-L-TX
FL_PCONT
Q607_5V
VFL
-F
+F
SW3.3V
UNSW-10V
UNSW18V
UNSW6V
SW_10V
SW5V
SW12V
UNSW12V
UNSW5V
GND(ANALOG)
GND(DIGITAL)
6 (1/10)
8 (2/10)
21 (3/10)
23 (4/10)
27 (5/10)
28 (6/10)
30 (7/10)
32 (8/10)
35 (9/10)
33 (8/10)
16

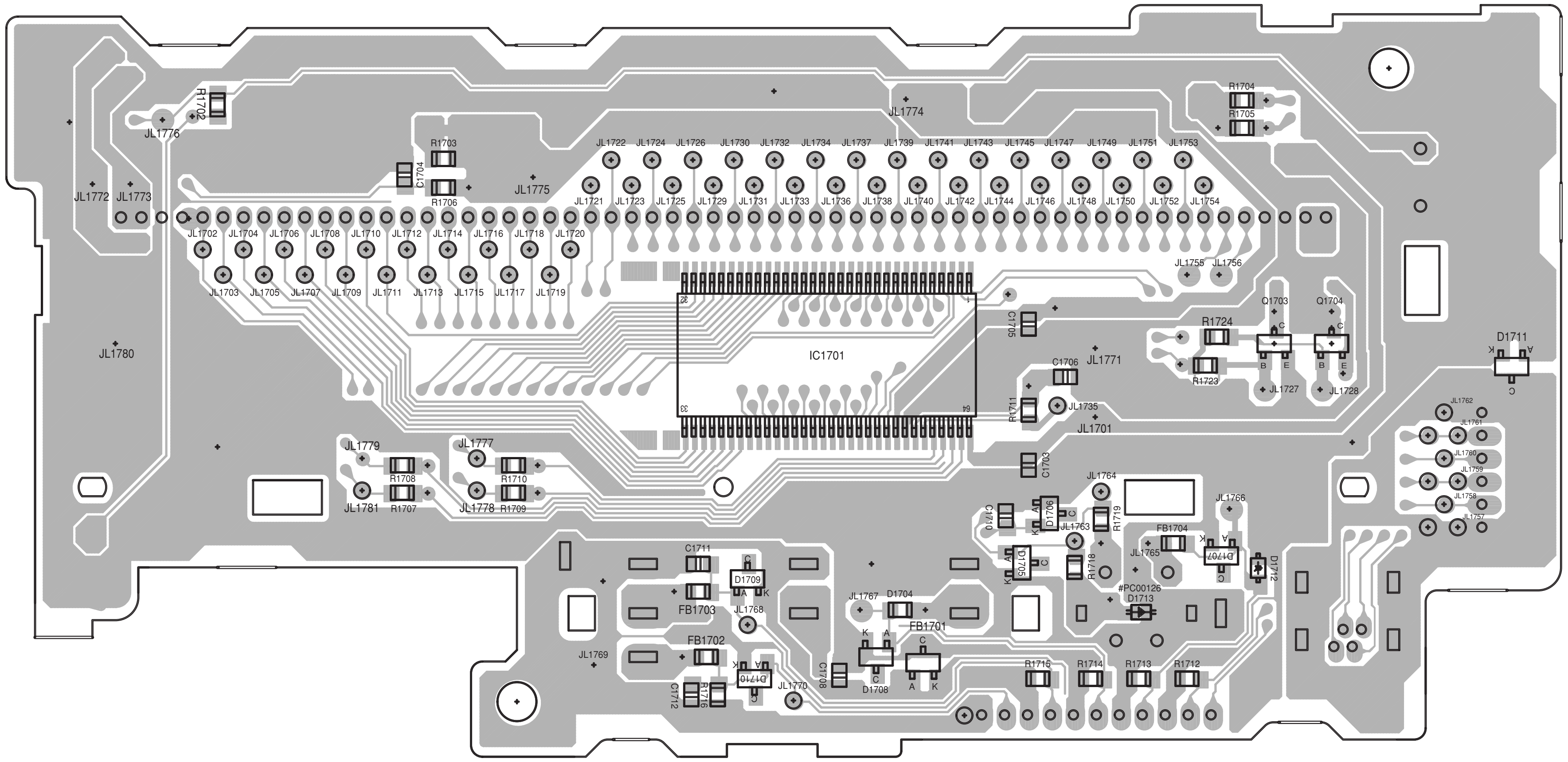
FL-130 (FL DRIVE) PRINTED WIRING BOARD

• LF : Uses unleaded solder.

FL-130 BOARD (SIDE A)

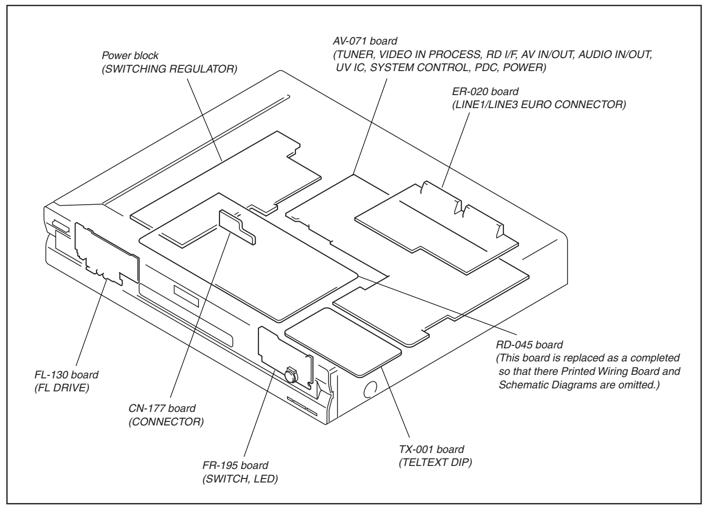

C1707
D1702
D1703
C1702
CN1702
S1701
ND1701
CN1704
6
1
CN1703
J1701
S1702

FL-130 BOARD (SIDE B)

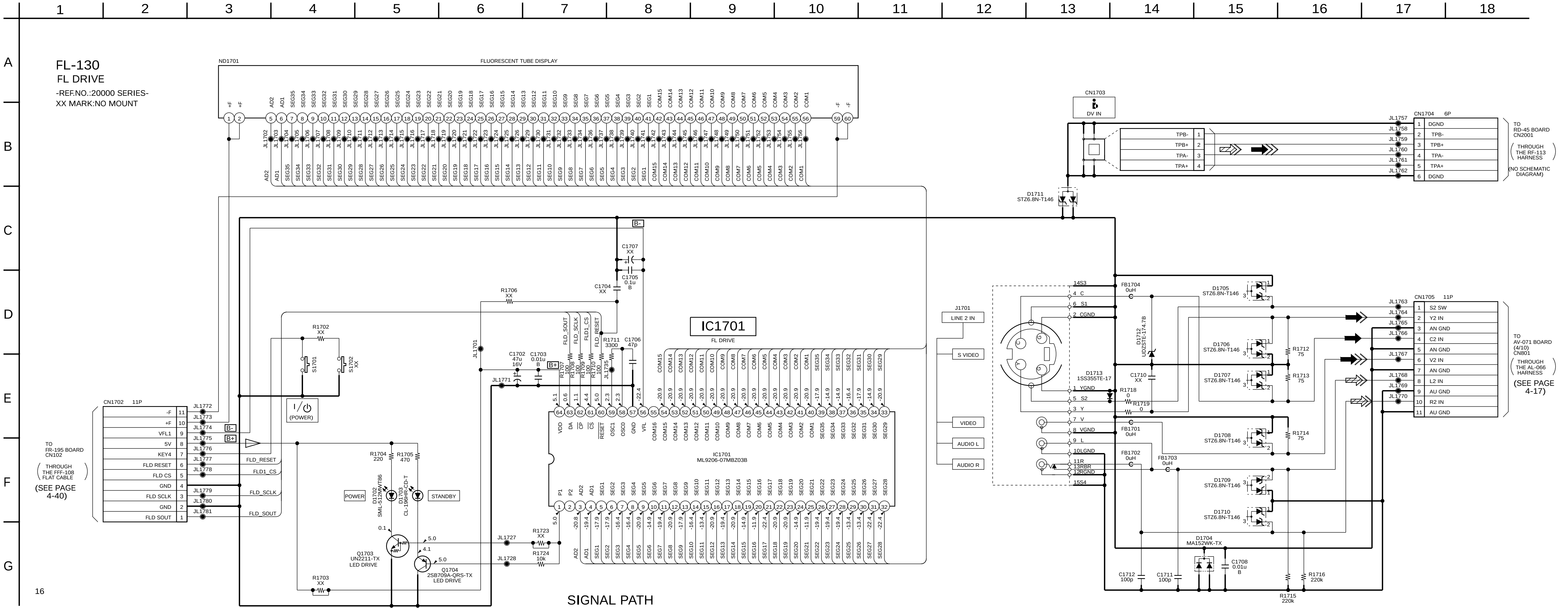

R1702
JL1776
JL1774
R1704
R1705
R1703
C1704
R1706
JL1775
JL1772
JL1773
JL1722
JL1724
JL1726
JL1730
JL1732
JL1734
JL1737
JL1739
JL1741
JL1743
JL1745
JL1747
JL1749
JL1751
JL1753
JL1721
JL1723
JL1725
JL1729
JL1731
JL1733
JL1736
JL1738
JL1740
JL1742
JL1744
JL1746
JL1748
JL1750
JL1752
JL1754
JL1702
JL1704
JL1706
JL1708
JL1710
JL1712
JL1714
JL1716
JL1718
JL1720
JL1703
JL1705
JL1707
JL1709
JL1711
JL1713
JL1715
JL1717
JL1719
JL1755
JL1756
IC1701
C1705
C1706
JL1771
Q1703
Q1704
R1724
R1723
JL1727
JL1728
D1711
JL1780
R1711
JL1735
JL1701
C1703
JL1779
JL1777
R1708
R1710
JL1781
R1707
JL1778
R1709
JL1764
JL1766
C1710
D1706
JL1763
R1719
FB1704
D1705
R1718
JL1765
D1707
D1712
C1711
D1709
FB1703
JL1768
JL1767
D1704
#PC00126
D1713
FB1701
FB1702
JL1769
D1710
D1708
JL1770
C1708
C1712
R1716
R1715
R1714
R1713
R1712
JL1762
JL1761
JL1760
JL1759
JL1758
JL1757

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.


Power block
(SWITCHING REGULATOR)
AV-071 board
(TUNER, VIDEO IN PROCESS, RD I/F, AV IN/OUT, AUDIO IN/OUT, UV IC, SYSTEM CONTROL, PDC, POWER)
ER-020 board
(LINE1/LINE3 EURO CONNECTOR)
FL-130 board
(FL DRIVE)
CN-177 board
(CONNECTOR)
RD-045 board
(This board is replaced as a completed so that there Printed Wiring Board and Schematic Diagrams are omitted.)
FR-195 board
(SWITCH, LED)
TX-001 board
(TELTEXT DIP)

For Schematic Diagram
- Refer to page 4-31 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F G
FL-130
FL DRIVE
-REF.NO.:20000 SERIES-
XX MARK:NO MOUNT
ND1701
FLUORESCENT TUBE DISPLAY
CN1703
DV IN
CN1704 6P
DGND
TPB-
TPB+
TPA-
TPA+
DGND
TO RD-45 BOARD CN2001
THROUGH THE RF-113 HARNESS
(NO SCHEMATIC DIAGRAM)
D1711 STZ6.8N-T146
B-
B+
C1707 XX
C1705 0.1u B
C1704 XX
R1706 XX
R1702 XX
S1701
S1702 XX
(POWER)
IC1701
FL DRIVE
IC1701 ML9206-07MBZ03B
FLD_SOUT
FLD_SCLK
FLD1_CS
FLD_RESET
R1711 3300
C1706 47p
C1702 47u 16V
C1703 0.01u B
JL1701
JL1771
J1701
LINE 2 IN
S VIDEO
VIDEO
AUDIO L
AUDIO R
FB1704 0uH
FB1701 0uH
FB1702 0uH
FB1703 0uH
D1712 UDZS7E-174.7B
D1713 1SS355TE-17
C1710 XX
R1718 0
R1719 0
D1705 STZ6.8N-T146
D1706 STZ6.8N-T146
D1707 STZ6.8N-T146
D1708 STZ6.8N-T146
D1709 STZ6.8N-T146
D1710 STZ6.8N-T146
R1712 75
R1713 75
R1714 75
CN1705 11P
S2 SW
Y2 IN
AN GND
C2 IN
AN GND
V2 IN
AN GND
L2 IN
AU GND
R2 IN
AU GND
TO AV-071 BOARD (4/10) CN801
THROUGH THE AL-066 HARNESS
(SEE PAGE 4-17)
D1704 MA152WK-TX
C1712 100p
C1711 100p
C1708 0.01u B
R1715 220k
R1716 220k
CN1702 11P
-F
+F
VFL1
5V
KEY4
FLD RESET
FLD CS
GND
FLD SCLK
GND
FLD SOUT
TO FR-195 BOARD CN102
THROUGH THE FFF-108 FLAT CABLE
(SEE PAGE 4-40)
FLD_RESET
FLD1_CS
FLD_SCLK
FLD_SOUT
R1704 220
R1705 470
POWER
STANDBY
D1702 SML-512MWT86
D1703 CL-196HR-CD-T
Q1703 UN2211-TX LED DRIVE
Q1704 2SB709A-QRS-TX LED DRIVE
R1703 XX
JL1727
JL1728
R1723 XX
R1724 10k
16

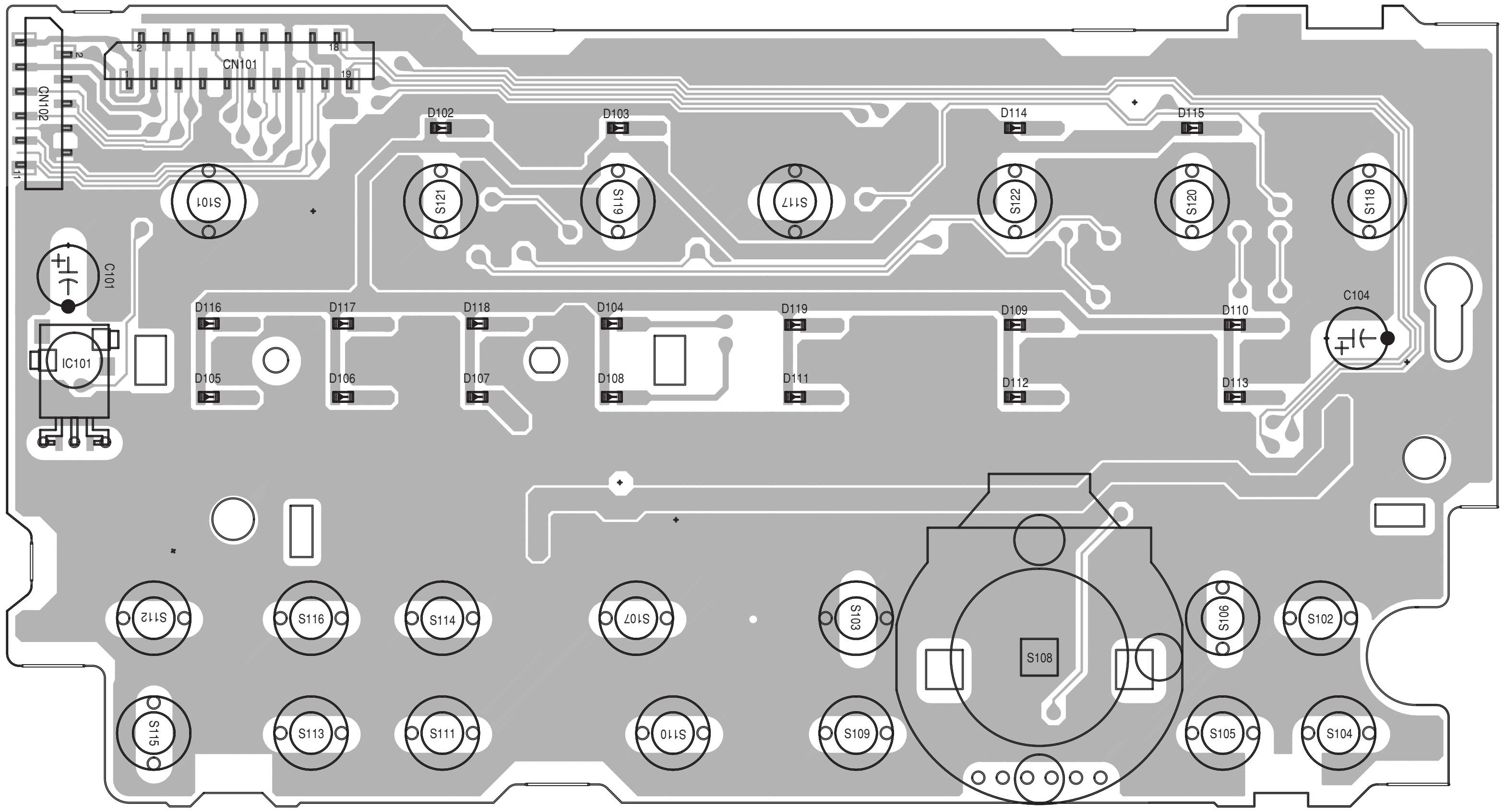
SIGNAL PATH

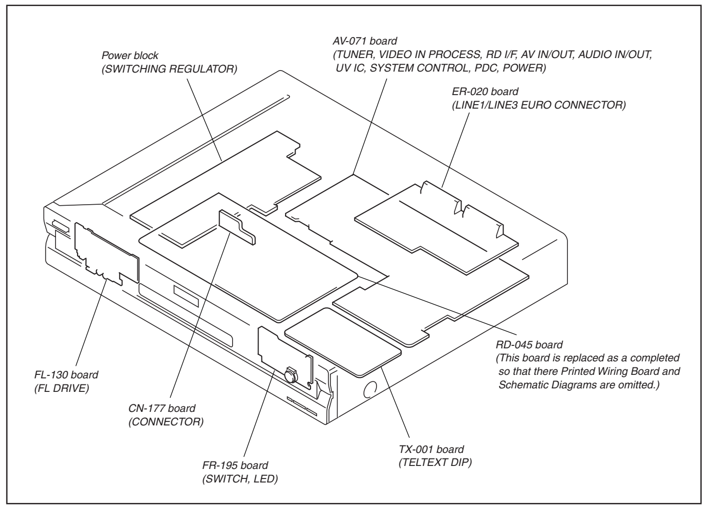
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	⇨
PB			⇨	⇨

FR-195 (SWITCH, LED) PRINTED WIRING BOARD

• : Uses unleaded solder.

FR-195 BOARD (SIDE A)


CN101
2
18
1
19
CN102
D102
D103
D114
D115
S101
S121
S119
S117
S122
S120
S118
C101
C104
IC101
D116
D117
D118
D104
D119
D109
D110
D105
D106
D107
D108
D111
D112
D113
S112
S116
S114
S107
S103
S108
S106
S102
S115
S113
S111
S110
S109
S105
S104

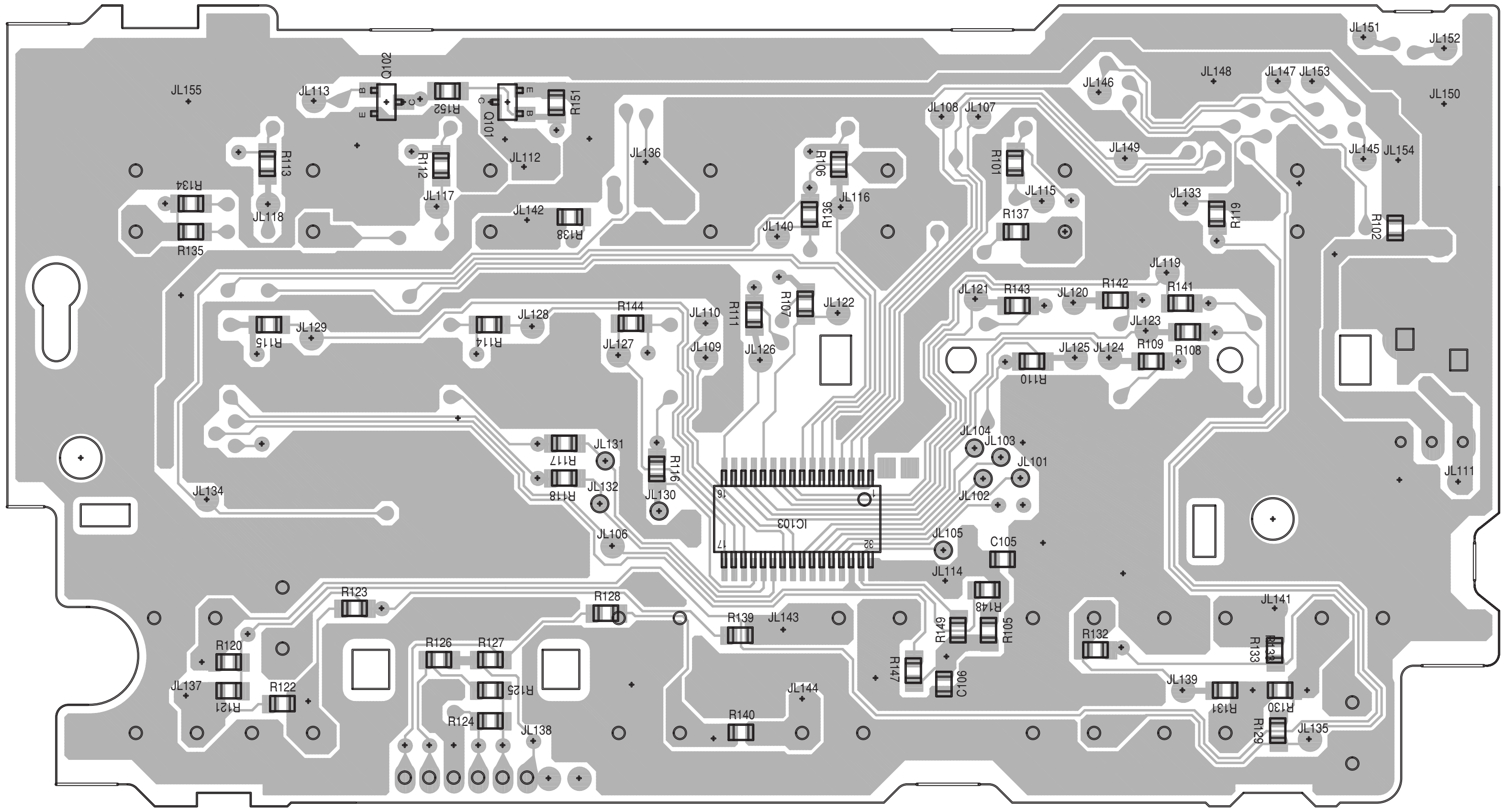

Power block
(SWITCHING REGULATOR)
AV-071 board
(TUNER, VIDEO IN PROCESS, RD I/F, AV IN/OUT, AUDIO IN/OUT, UV IC, SYSTEM CONTROL, PDC, POWER)
ER-020 board
(LINE1/LINE3 EURO CONNECTOR)
RD-045 board
(This board is replaced as a completed so that there Printed Wiring Board and Schematic Diagrams are omitted.)
FL-130 board
(FL DRIVE)
CN-177 board
(CONNECTOR)
FR-195 board
(SWITCH, LED)
TX-001 board
(TELTEXT DIP)

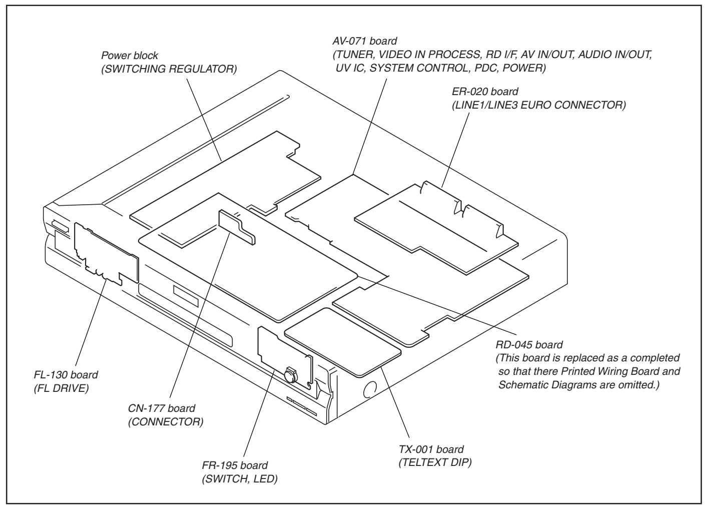
For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

FR-195 BOARD (SIDE B)

• : Uses unleaded solder.


JL151
JL152
JL155
JL113
Q102
R152
Q101
R151
JL148
JL147
JL153
JL146
JL150
JL108
JL107
R113
R112
JL112
JL136
R106
R101
JL149
JL145
JL154
R134
JL117
JL116
JL115
JL133
JL118
JL142
R138
R136
JL140
R137
R119
R102
R135
JL119
R107
JL121
R143
R142
R141
R111
JL122
JL120
JL110
R144
JL128
JL123
R115
JL129
R114
JL127
JL109
JL126
JL125
JL124
R109
R108
R110
JL104
JL131
R116
JL103
R117
JL101
R118
JL132
JL130
JL102
JL134
IC103
JL106
JL105
C105
JL114
R123
R128
R148
JL141
R139
JL143
R149
R105
R132
R126
R127
R120
R147
R133
R125
C106
JL139
JL137
R121
R122
JL144
R131
R130
R124
R140
R129
JL138
JL135

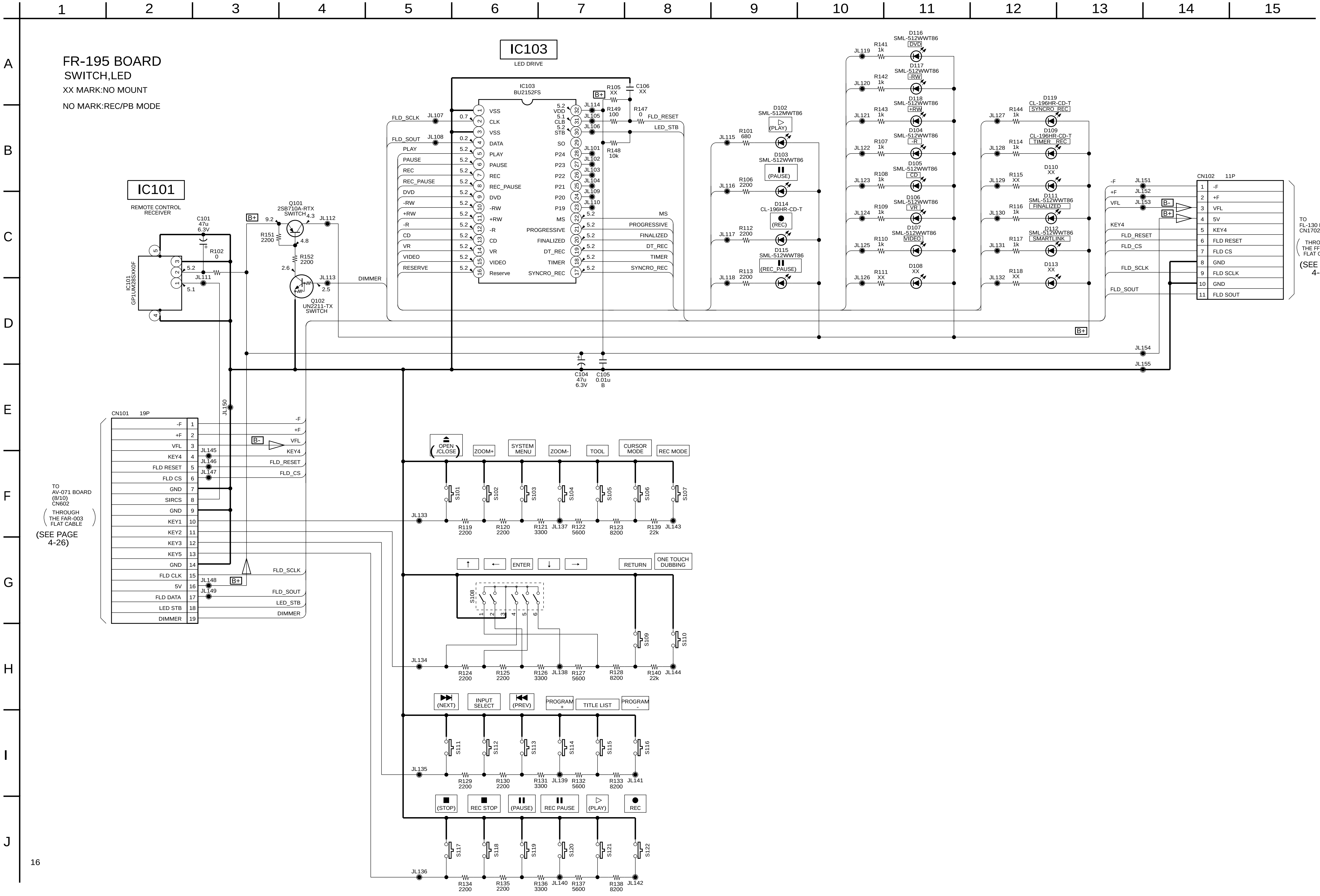

Power block
(SWITCHING REGULATOR)
AV-071 board
(TUNER, VIDEO IN PROCESS, RD I/F, AV IN/OUT, AUDIO IN/OUT,
UV IC, SYSTEM CONTROL, PDC, POWER)
ER-020 board
(LINE1/LINE3 EURO CONNECTOR)
RD-045 board
(This board is replaced as a completed
so that there Printed Wiring Board and
Schematic Diagrams are omitted.)
FL-130 board
(FL DRIVE)
CN-177 board
(CONNECTOR)
TX-001 board
(TELTEXT DIP)
FR-195 board
(SWITCH, LED)

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram

- Refer to page 4-35 for printed wiring board.



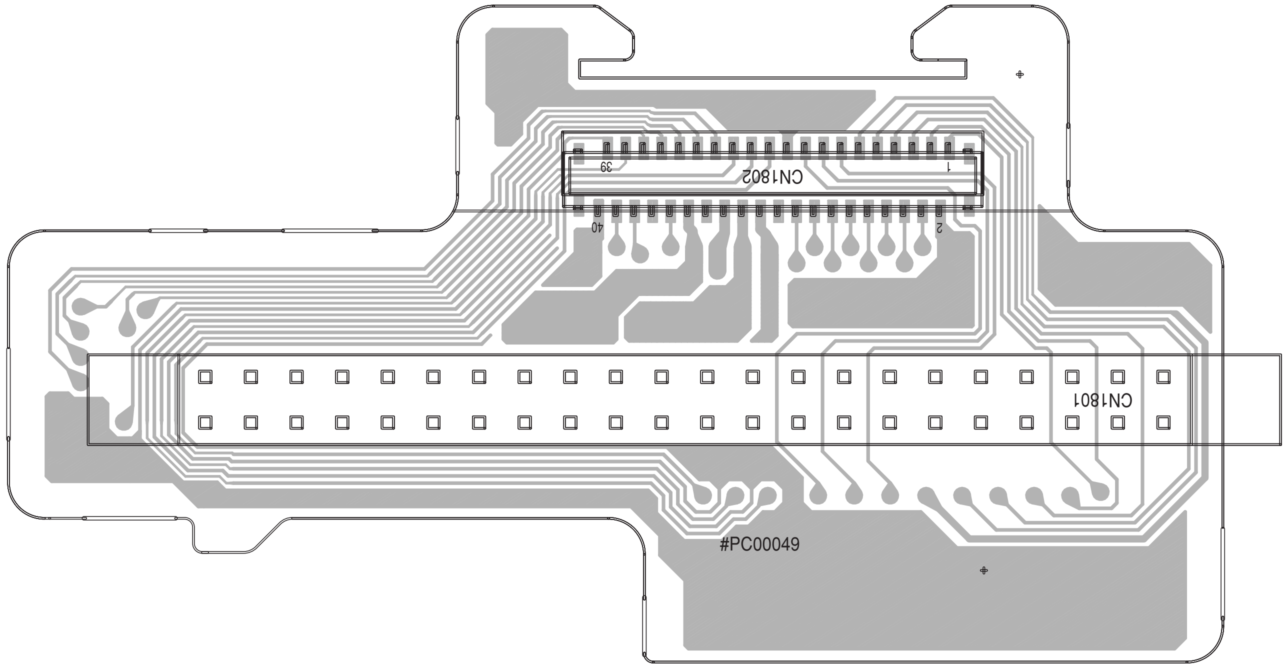
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
FR-195 BOARD
SWITCH,LED
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC103
LED DRIVE
IC103
BU2152FS
VSS
CLK
VSS
DATA
PLAY
PAUSE
REC
REC_PAUSE
DVD
-RW
+RW
-R
CD
VR
VIDEO
Reserve
VDD
CLB
STB
SO
P24
P23
P22
P21
P20
P19
MS
PROGRESSIVE
FINALIZED
DT_REC
TIMER
SYNCRO_REC
FLD_SCLK
FLD_SOUT
FLD_RESET
LED_STB
DIMMER
IC101
REMOTE CONTROL
RECEIVER
IC101
GP1UM285XK0F
C101
47u
6.3V
R102
0
Q101
2SB710A-RTX
SWITCH
Q102
UN2211-TX
SWITCH
R151
2200
R152
2200
C104
47u
6.3V
C105
0.01u
B
D102
SML-512MWT86
(PLAY)
D103
SML-512WWT86
(PAUSE)
D114
CL-196HR-CD-T
(REC)
D115
SML-512WWT86
(REC_PAUSE)
D116
SML-512WWT86
DVD
D117
SML-512WWT86
-RW
D118
SML-512WWT86
+RW
D104
SML-512WWT86
-R
D105
SML-512WWT86
CD
D106
SML-512WWT86
VR
D107
SML-512WWT86
VIDEO
D108
XX
D119
CL-196HR-CD-T
SYNCRO_REC
D109
CL-196HR-CD-T
TIMER REC
D110
XX
D111
SML-512WWT86
FINALIZED
D112
SML-512WWT86
SMARTLINK
D113
XX
CN102 11P
1 -F
2 +F
3 VFL
4 5V
5 KEY4
6 FLD RESET
7 FLD CS
8 GND
9 FLD SCLK
10 GND
11 FLD SOUT
TO
FL-130 BOARD
CN1702
THROUGH
THE FFF-018
FLAT CABLE
(SEE PAGE
4-40)
CN101 19P
1 -F
2 +F
3 VFL
4 KEY4
5 FLD RESET
6 FLD CS
7 GND
8 SIRCS
9 GND
10 KEY1
11 KEY2
12 KEY3
13 KEY5
14 GND
15 FLD CLK
16 5V
17 FLD DATA
18 LED STB
19 DIMMER
TO
AV-071 BOARD
(8/10)
CN602
THROUGH
THE FAR-003
FLAT CABLE
(SEE PAGE
4-26)
OPEN
/CLOSE
ZOOM+
SYSTEM
MENU
ZOOM-
TOOL
CURSOR
MODE
REC MODE
S101
S102
S103
S104
S105
S106
S107
↑
←
ENTER
↓
→
RETURN
ONE TOUCH
DUBBING
S108
S109
S110
(NEXT)
INPUT
SELECT
(PREV)
PROGRAM
+
TITLE LIST
PROGRAM
-
S111
S112
S113
S114
S115
S116
(STOP)
REC STOP
(PAUSE)
REC PAUSE
(PLAY)
REC
S117
S118
S119
S120
S121
S122
JL133
JL134
JL135
JL136
R119 2200
R120 2200
R121 3300
R122 5600
R123 8200
R139 22k
R124 2200
R125 2200
R126 3300
R127 5600
R128 8200
R140 22k
R129 2200
R130 2200
R131 3300
R132 5600
R133 8200
R134 2200
R135 2200
R136 3300
R137 5600
R138 8200
16

SWITCH, LED
FR-195

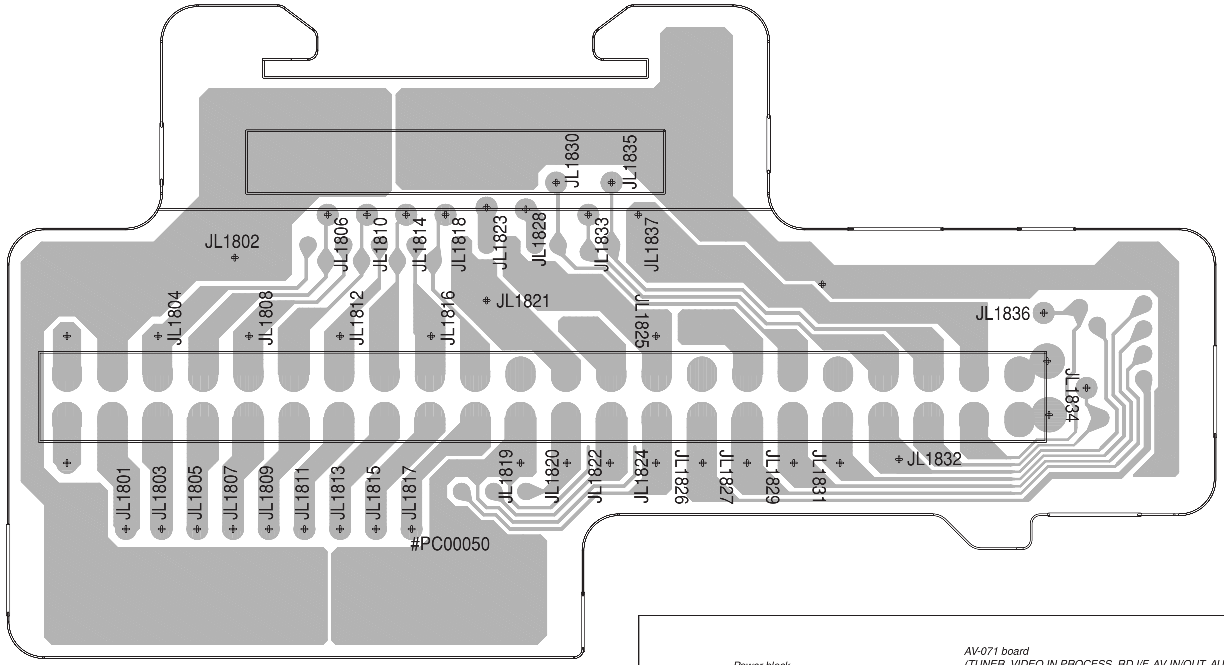
CN-177 (CONNECTOR) PRINTED WIRING BOARD

• : Uses unleaded solder.

CN-177 BOARD (SIDE A)

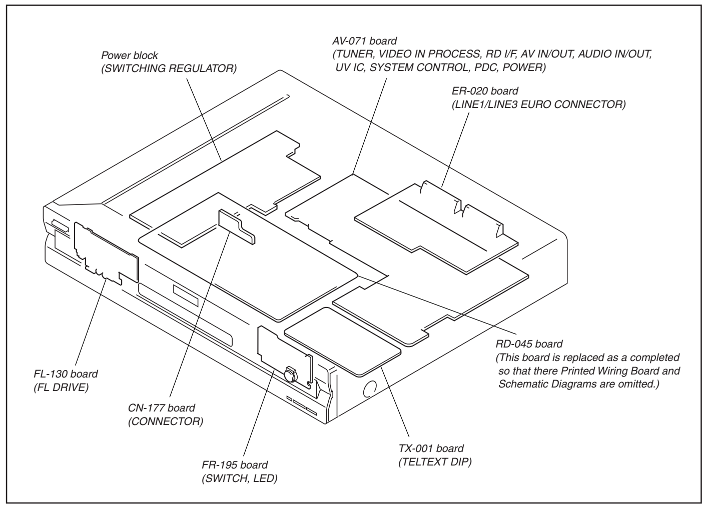

CN1802
39
1
40
2
CN1801
#PC00049

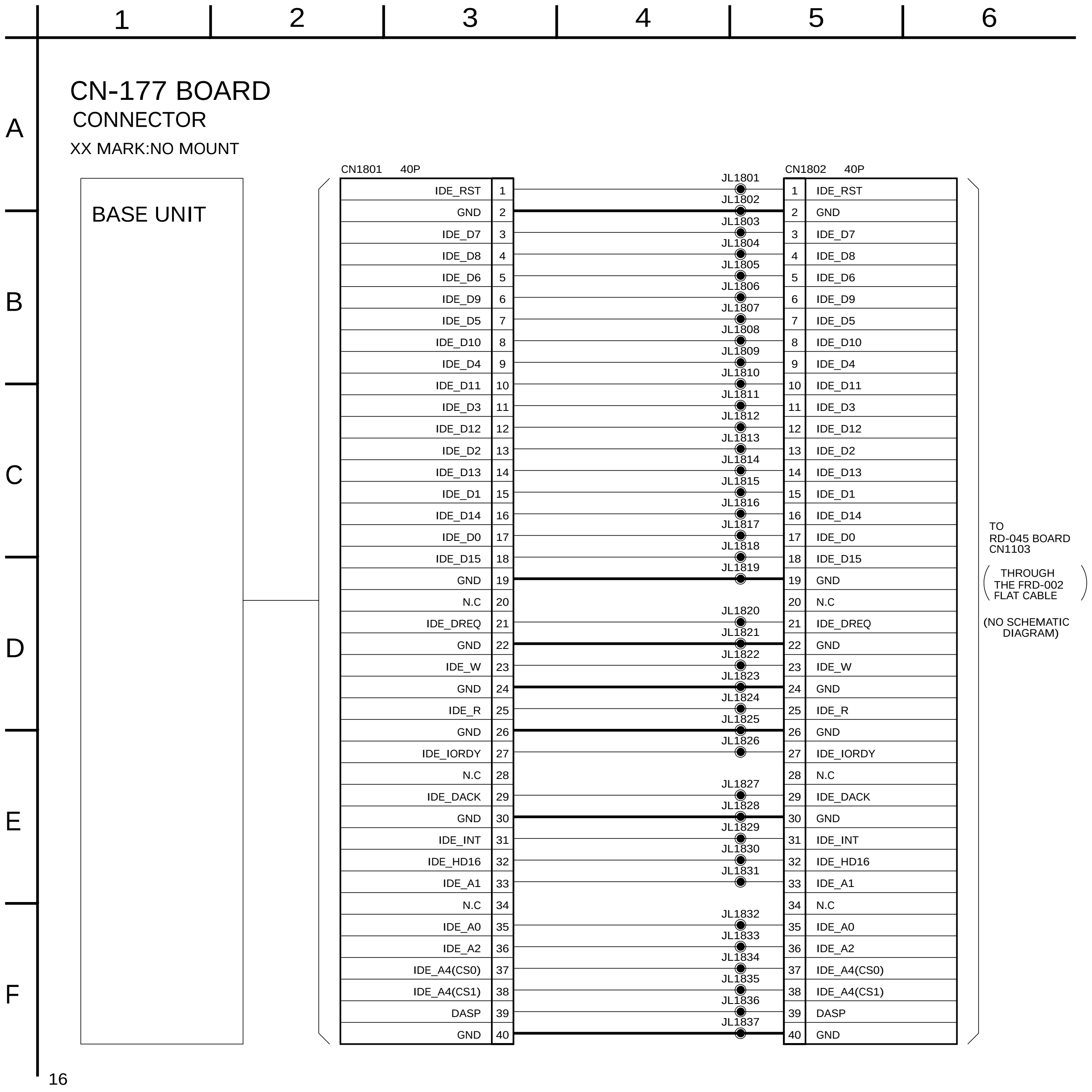
CN-177 BOARD (SIDE B)


JL1830
JL1835
JL1802
JL1806
JL1810
JL1814
JL1818
JL1823
JL1828
JL1833
JL1837
JL1804
JL1808
JL1812
JL1816
JL1821
JL1825
JL1836
JL1834
JL1801
JL1803
JL1805
JL1807
JL1809
JL1811
JL1813
JL1815
JL1817
JL1819
JL1820
JL1822
JL1824
JL1826
JL1827
JL1829
JL1831
JL1832
#PC00050

For printed wiring board

There are a few cases that the part printed on this diagram isn’t mounted in this model.


Power block
(SWITCHING REGULATOR)
AV-071 board
(TUNER, VIDEO IN PROCESS, RD I/F, AV IN/OUT, AUDIO IN/OUT, UV IC, SYSTEM CONTROL, PDC, POWER)
ER-020 board
(LINE1/LINE3 EURO CONNECTOR)
RD-045 board
(This board is replaced as a completed so that there Printed Wiring Board and Schematic Diagrams are omitted.)
FL-130 board
(FL DRIVE)
CN-177 board
(CONNECTOR)
FR-195 board
(SWITCH, LED)
TX-001 board
(TELTEXT DIP)

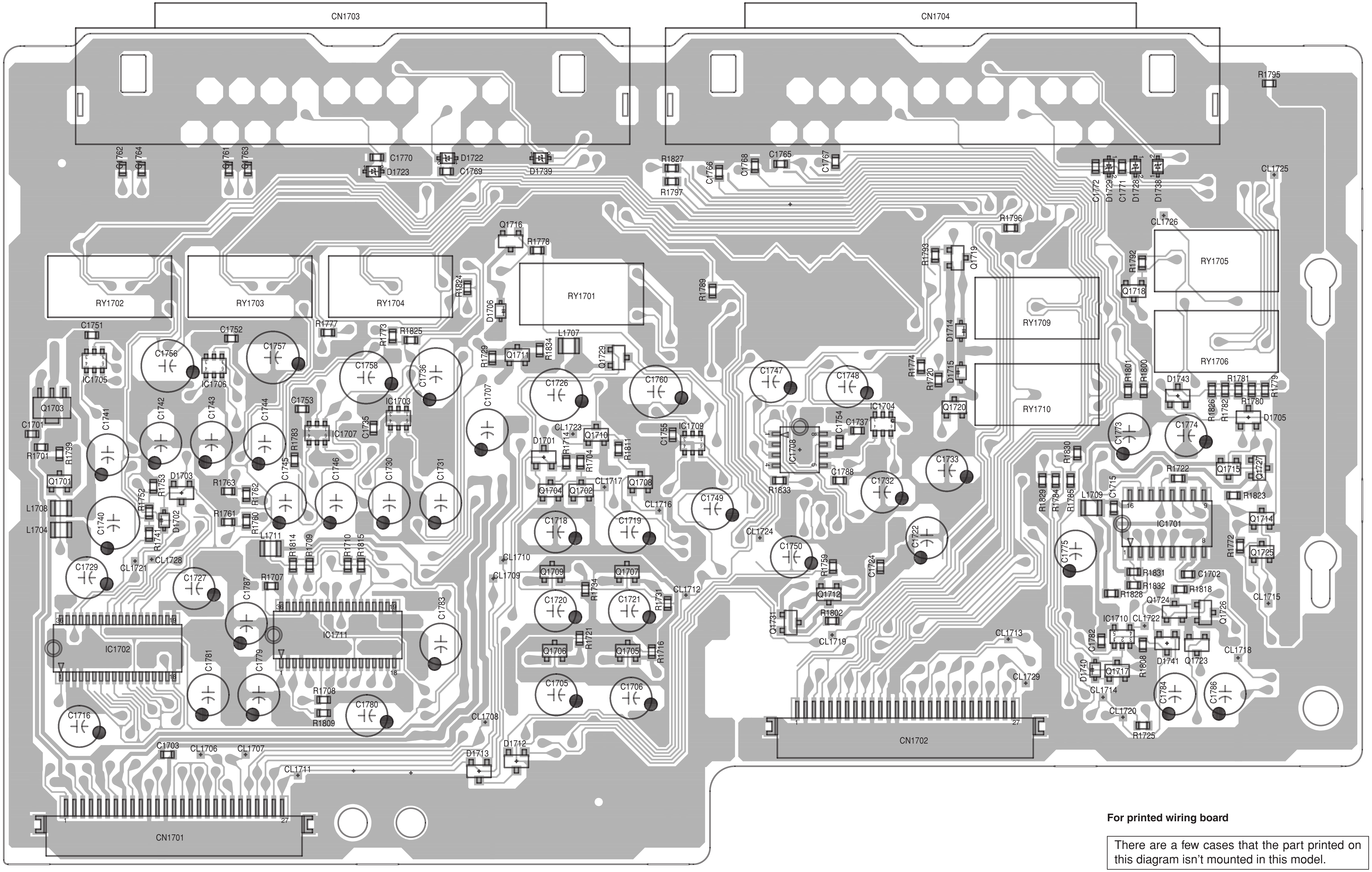

1
2
3
4
5
6
A
B
C
D
E
F
CN-177 BOARD
CONNECTOR
XX MARK:NO MOUNT
BASE UNIT
CN1801 40P
CN1802 40P
IDE_RST 1 JL1801 1 IDE_RST
GND 2 JL1802 2 GND
IDE_D7 3 JL1803 3 IDE_D7
IDE_D8 4 JL1804 4 IDE_D8
IDE_D6 5 JL1805 5 IDE_D6
IDE_D9 6 JL1806 6 IDE_D9
IDE_D5 7 JL1807 7 IDE_D5
IDE_D10 8 JL1808 8 IDE_D10
IDE_D4 9 JL1809 9 IDE_D4
IDE_D11 10 JL1810 10 IDE_D11
IDE_D3 11 JL1811 11 IDE_D3
IDE_D12 12 JL1812 12 IDE_D12
IDE_D2 13 JL1813 13 IDE_D2
IDE_D13 14 JL1814 14 IDE_D13
IDE_D1 15 JL1815 15 IDE_D1
IDE_D14 16 JL1816 16 IDE_D14
IDE_D0 17 JL1817 17 IDE_D0
IDE_D15 18 JL1818 18 IDE_D15
GND 19 JL1819 19 GND
N.C 20 20 N.C
IDE_DREQ 21 JL1820 21 IDE_DREQ
GND 22 JL1821 22 GND
IDE_W 23 JL1822 23 IDE_W
GND 24 JL1823 24 GND
IDE_R 25 JL1824 25 IDE_R
GND 26 JL1825 26 GND
IDE_IORDY 27 JL1826 27 IDE_IORDY
N.C 28 28 N.C
IDE_DACK 29 JL1827 29 IDE_DACK
GND 30 JL1828 30 GND
IDE_INT 31 JL1829 31 IDE_INT
IDE_HD16 32 JL1830 32 IDE_HD16
IDE_A1 33 JL1831 33 IDE_A1
N.C 34 34 N.C
IDE_A0 35 JL1832 35 IDE_A0
IDE_A2 36 JL1833 36 IDE_A2
IDE_A4(CS0) 37 JL1834 37 IDE_A4(CS0)
IDE_A4(CS1) 38 JL1835 38 IDE_A4(CS1)
DASP 39 JL1836 39 DASP
GND 40 JL1837 40 GND
TO
RD-045 BOARD
CN1103
THROUGH
THE FRD-002
FLAT CABLE
(NO SCHEMATIC
DIAGRAM)
16

ER-020 (LINE1/LINE3 EURO CONNECTOR) PRINTED WIRING BOARD

• Refer to page 4-41 for circuit boards location.

• LF : Uses unleaded solder.

ER-020 BOARD (SIDE A)

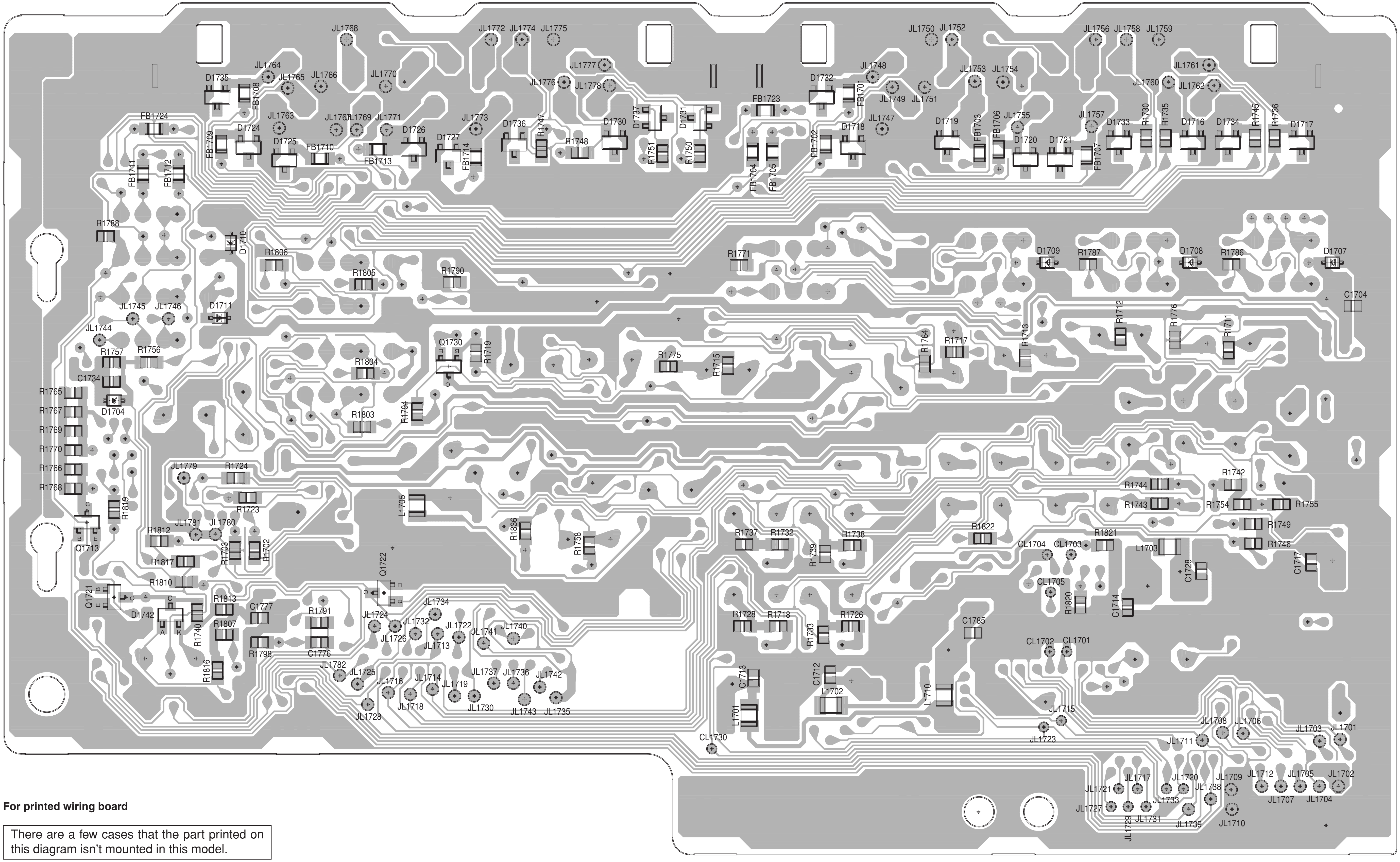

CN1703
CN1704
R1795
C1762
C1764
C1761
C1763
C1770
D1722
D1723
C1769
D1739
R1827
R1797
C1766
C1768
C1765
C1767
C1772
D1729
C1771
D1728
D1738
CL1725
Q1716
R1778
R1796
CL1726
RY1702
RY1703
RY1704
R1824
RY1701
R1789
R1793
Q1719
R1792
RY1705
Q1718
D1706
RY1709
C1751
C1752
R1777
R1773
R1825
L1707
D1714
C1757
C1756
IC1705
IC1706
C1758
C1736
R1729
Q1711
R1834
Q1729
C1707
C1726
C1760
C1747
C1748
R1774
R1720
D1715
RY1706
R1801
R1800
D1743
R1781
R1779
Q1703
C1741
C1742
C1743
C1744
C1753
IC1703
IC1707
C1735
Q1720
RY1710
R1826
R1782
R1780
D1705
IC1704
C1754
C1737
C1701
R1701
R1799
C1755
IC1709
CL1723
Q1710
D1701
R1714
R1704
R1811
IC1708
C1773
C1774
R1783
C1745
C1746
C1730
C1731
C1733
R1830
Q1701
D1703
R1753
R1752
R1763
R1762
CL1717
Q1708
Q1704
Q1702
C1788
R1833
C1732
R1722
Q1715
Q1727
L1708
L1704
C1740
R1741
D1702
R1761
R1760
L1711
CL1716
C1749
R1829
R1784
R1785
L1709
C1715
IC1701
R1823
C1718
C1719
Q1714
CL1724
C1750
C1722
C1775
R1772
Q1725
R1814
R1709
R1710
R1815
CL1710
CL1709
C1729
CL1721
CL1728
C1727
C1787
R1707
Q1709
Q1707
R1759
C1724
R1831
C1702
R1832
R1818
R1828
Q1712
Q1724
Q1726
CL1712
CL1715
R1734
C1720
C1721
R1731
R1802
Q1731
IC1710
CL1722
C1783
IC1702
IC1711
CL1719
CL1713
C1782
R1721
Q1706
Q1705
R1716
D1741
Q1723
CL1718
C1781
C1779
R1808
D1740
Q1717
C1705
C1706
CL1729
CL1714
C1784
C1786
R1708
C1780
R1809
C1716
CL1708
CL1720
R1725
CN1702
C1703
CL1706
CL1707
D1712
D1713
CL1711
CN1701

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

ER-020 BOARD (SIDE B)

- Refer to page 4-41 for circuit boards location.
- LF : Uses unleaded solder.

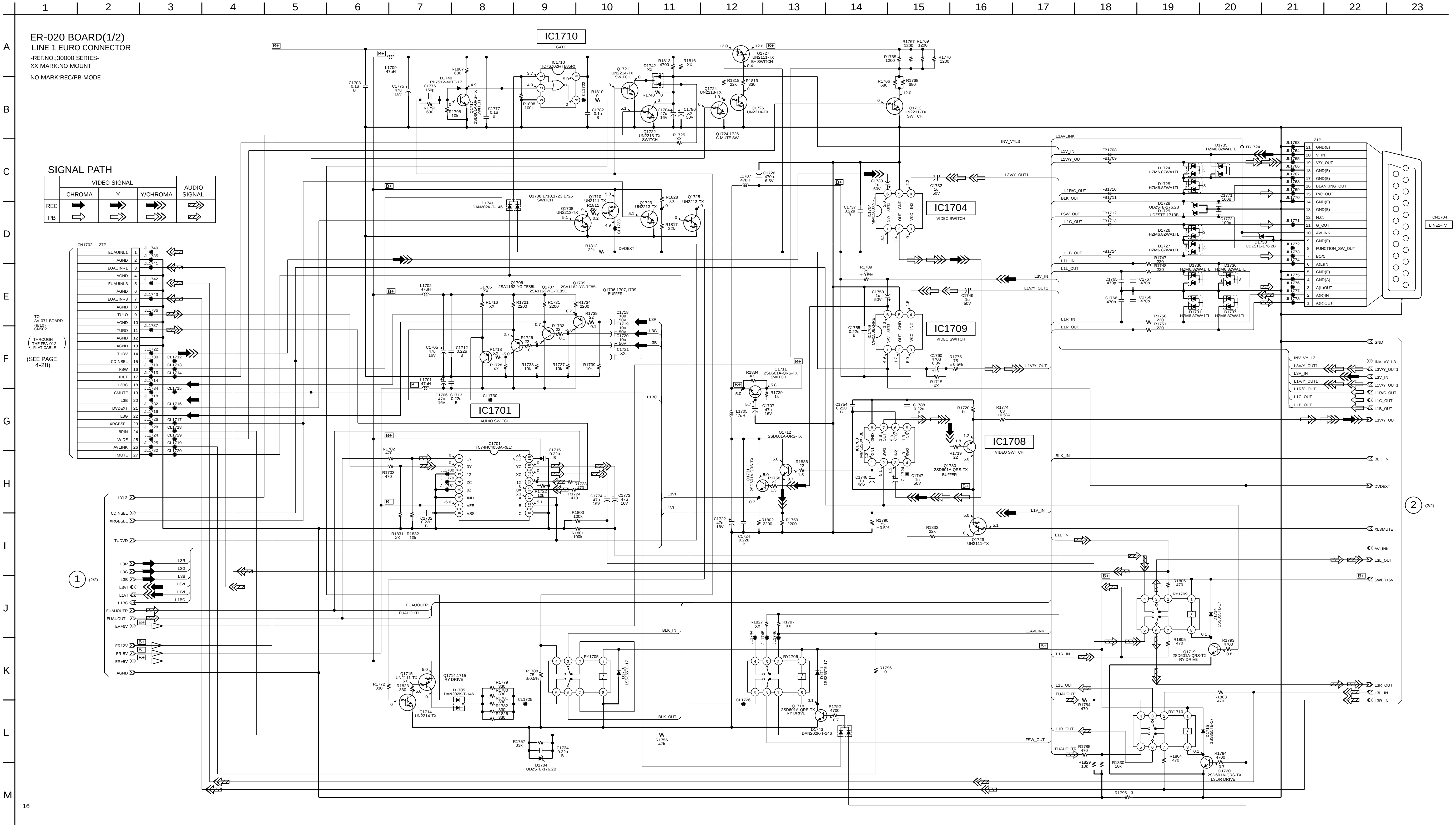

JL1768
JL1772
JL1774
JL1775
JL1750
JL1752
JL1756
JL1758
JL1759
JL1764
JL1765
JL1766
JL1770
JL1777
JL1776
JL1778
JL1748
JL1753
JL1754
JL1761
JL1760
JL1762
D1735
FB1708
D1732
FB1701
JL1749
JL1751
FB1723
FB1724
JL1763
JL1767
JL1769
JL1771
JL1773
D1736
R1747
D1730
D1737
D1731
JL1747
D1719
FB1703
FB1706
JL1755
JL1757
D1733
R1730
R1735
D1716
D1734
R1745
R1736
D1717
D1724
D1725
FB1710
FB1713
D1726
D1727
FB1714
R1748
R1751
R1750
FB1709
FB1704
FB1705
FB1702
D1718
D1720
D1721
FB1707
FB1711
FB1712
R1788
D1710
R1806
R1805
R1790
R1771
D1709
R1787
D1708
R1786
D1707
C1704
JL1745
JL1746
D1711
JL1744
R1757
R1756
Q1730
R1719
R1804
R1775
R1715
R1764
R1717
R1713
R1712
R1776
R1711
C1734
R1765
D1704
R1767
R1769
R1770
R1766
R1768
R1803
R1794
JL1779
R1724
R1723
R1819
L1705
R1836
R1758
R1744
R1743
R1742
R1754
R1755
R1749
R1746
Q1713
R1812
JL1781
JL1780
R1703
R1702
R1817
R1810
Q1722
R1737
R1732
R1739
R1738
R1822
CL1704
CL1703
R1821
L1703
C1726
C1717
CL1705
R1820
C1714
Q1721
D1742
R1813
C1777
R1791
JL1734
JL1724
JL1732
JL1722
JL1741
JL1740
R1740
R1807
R1798
C1776
JL1726
JL1713
R1728
R1718
R1733
R1726
C1785
CL1702
CL1701
R1816
JL1782
JL1725
JL1716
JL1714
JL1719
JL1737
JL1736
JL1742
JL1728
JL1718
JL1730
JL1743
JL1735
C1713
C1712
L1702
L1710
L1701
CL1730
JL1715
JL1723
JL1708
JL1706
JL1703
JL1701
JL1711
JL1717
JL1720
JL1709
JL1712
JL1705
JL1702
JL1721
JL1738
JL1707
JL1704
JL1727
JL1733
JL1729
JL1731
JL1739
JL1710

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

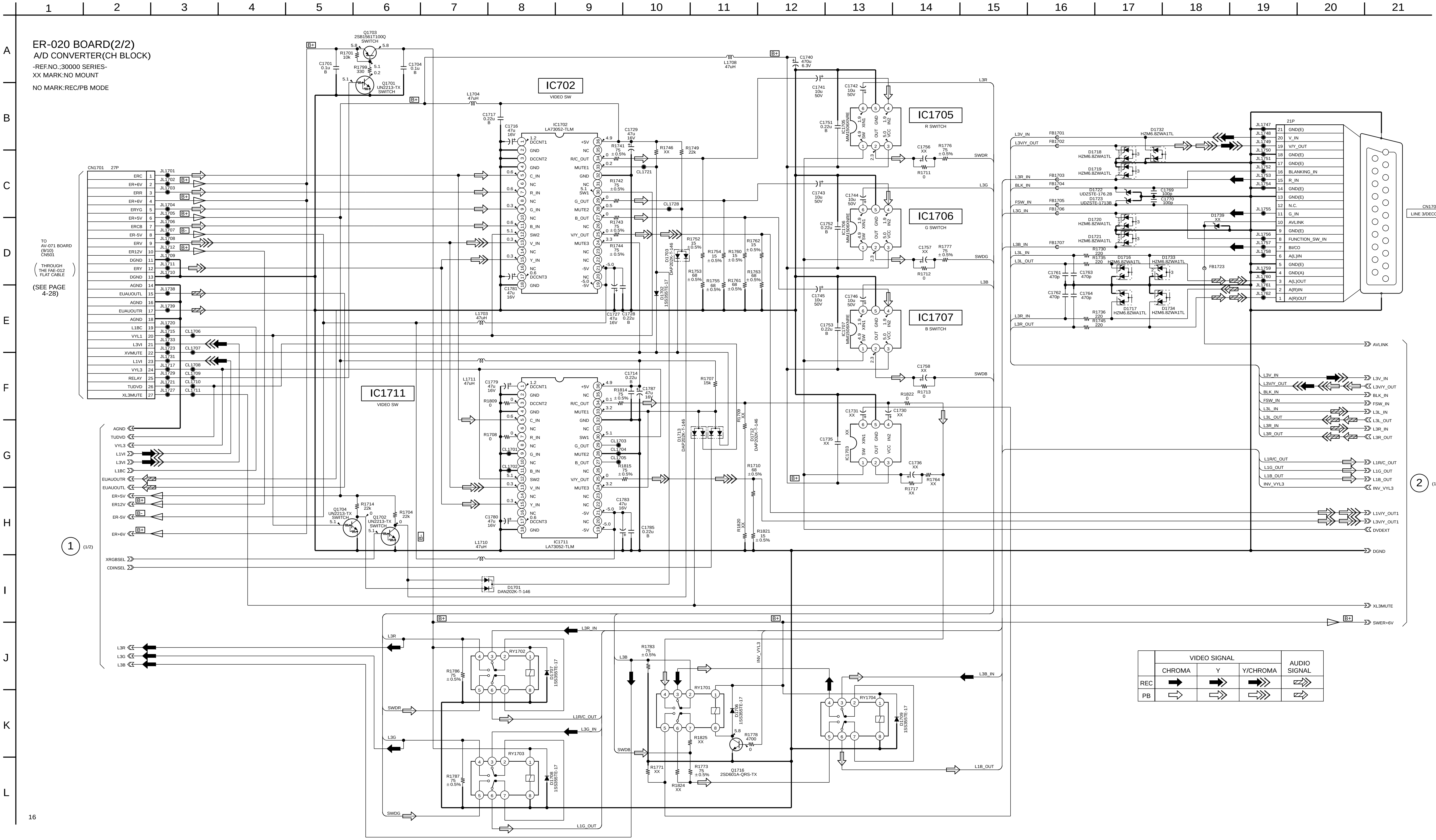
For Schematic Diagram

• Refer to page 4-43 for printed wiring board.


ER-020 BOARD(1/2)
LINE 1 EURO CONNECTOR
-REF.NO.:30000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
AUDIO SIGNAL
REC
PB
IC1710
GATE
IC1704
VIDEO SWITCH
IC1709
VIDEO SWITCH
IC1708
VIDEO SWITCH
IC1701
AUDIO SWITCH
CN1702 27P
TO AV-071 BOARD (9/10) CN502 THROUGH THE FEA-012 FLAT CABLE (SEE PAGE 4-28)
CN1704
LINE1-TV
1 (2/2)
2 (2/2)
16

For Schematic Diagram

- Refer to page 4-43 for printed wiring board.


ER-020 BOARD(2/2)
A/D CONVERTER(CH BLOCK)
-REF.NO.:30000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC702
VIDEO SW
IC1702
LA73052-TLM
IC1711
VIDEO SW
LA73052-TLM
IC1705
R SWITCH
IC1706
G SWITCH
IC1707
B SWITCH
CN1701 27P
TO AV-071 BOARD (9/10) CN501
THROUGH THE FAE-012 FLAT CABLE
(SEE PAGE 4-28)
CN1703
LINE 3/DECODER
21P
Q1703 2SB1561T100Q SWITCH
Q1701 UN2213-TX SWITCH
Q1704 UN2213-TX SWITCH
Q1702 UN2213-TX SWITCH
Q1716 2SD601A-QRS-TX
RY1701
RY1702
RY1703
RY1704
D1701 DAN202K-T-146
L3R
L3G
L3B
L3R_IN
L3B_IN
L3G_IN
L1R/C_OUT
L1G_OUT
L1B_OUT
SWDR
SWDG
SWDB
AVLINK
L3V_IN
L3V/Y_OUT
BLK_IN
FSW_IN
L3L_IN
L3L_OUT
L3R_OUT
INV_VYL3
L1V/Y_OUT1
L3V/Y_OUT1
DVDEXT
DGND
XL3MUTE
SWER+6V
XRGBSEL
CDINSEL
(1/2)
(1/2)
16
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
AUDIO SIGNAL
REC
PB

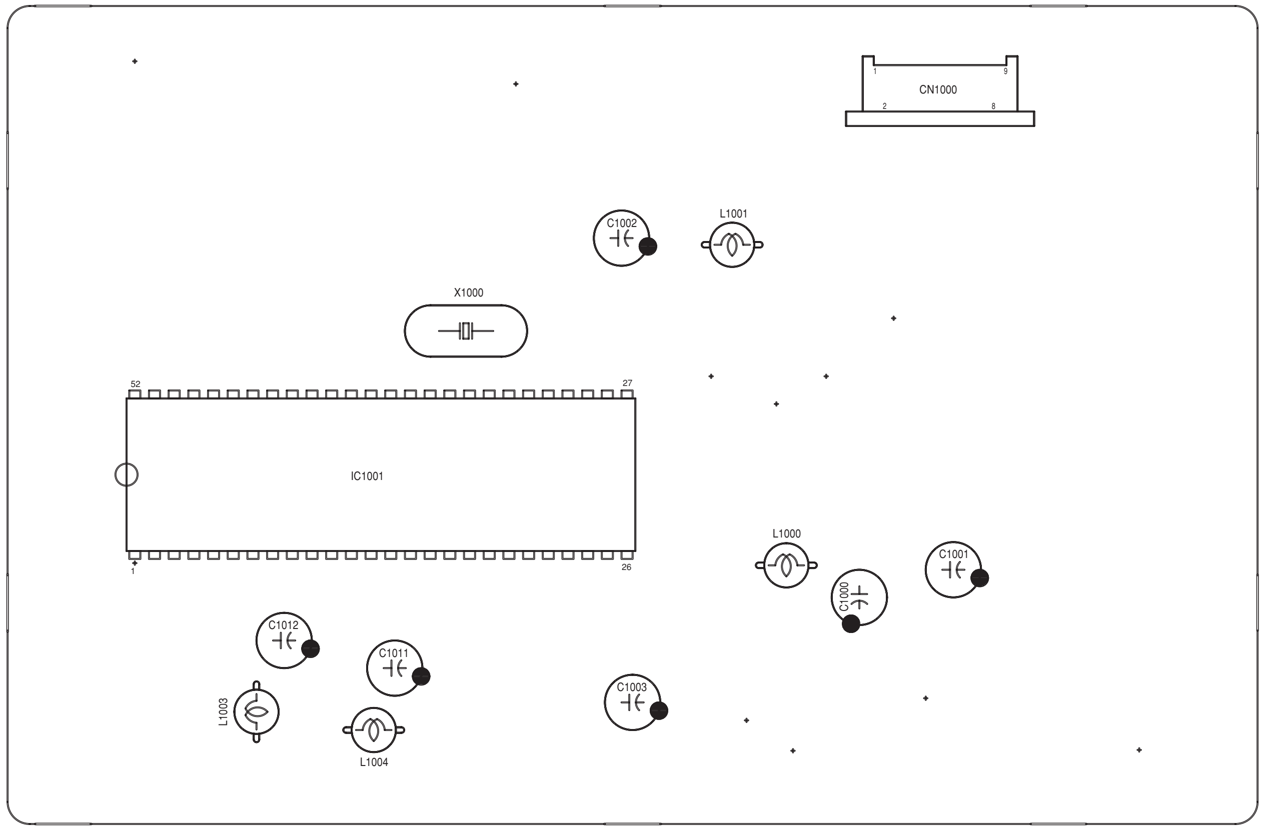
LINE3 EURO CONNECTOR

ER-020 (2/2)

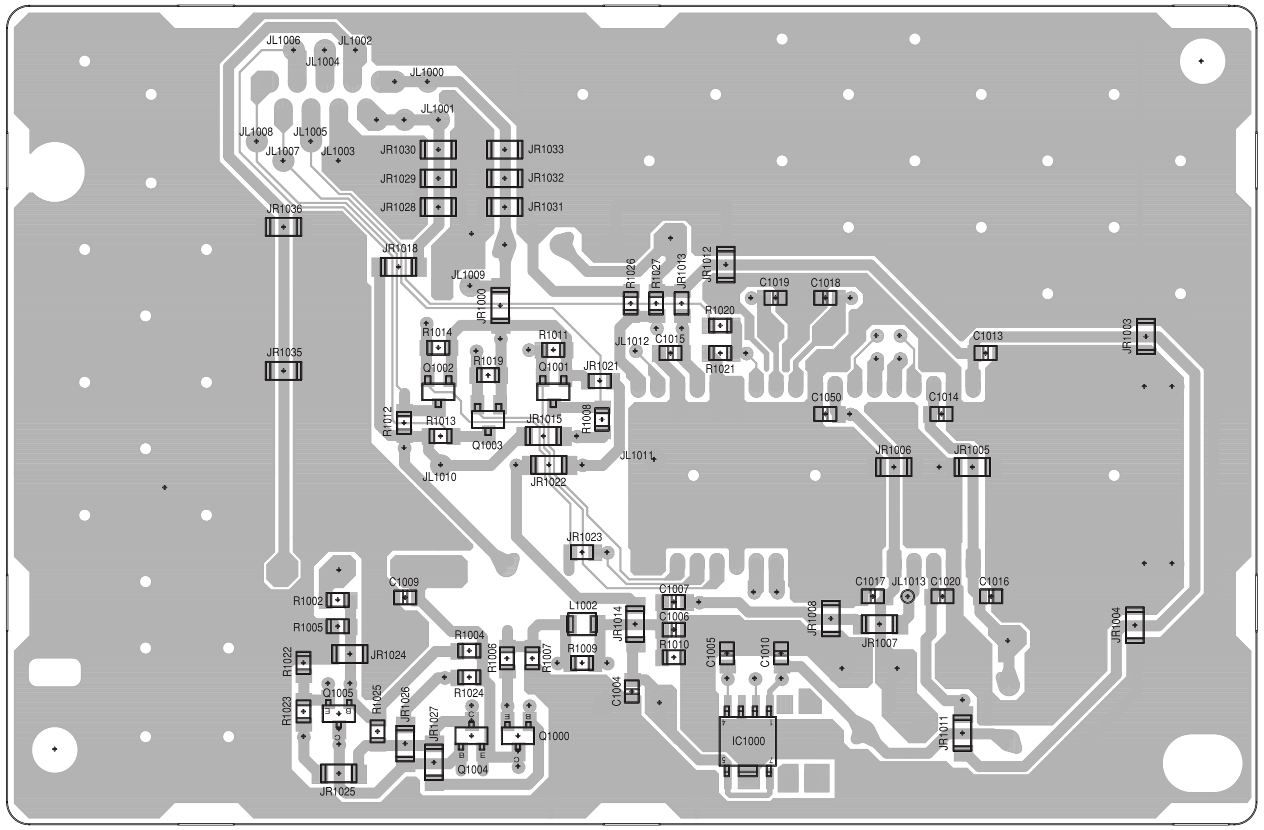
TX-001 (TELTEXT) PRINTED WIRING BOARD

• LF : Uses unleaded solder.

TX-001 BOARD (SIDE A)

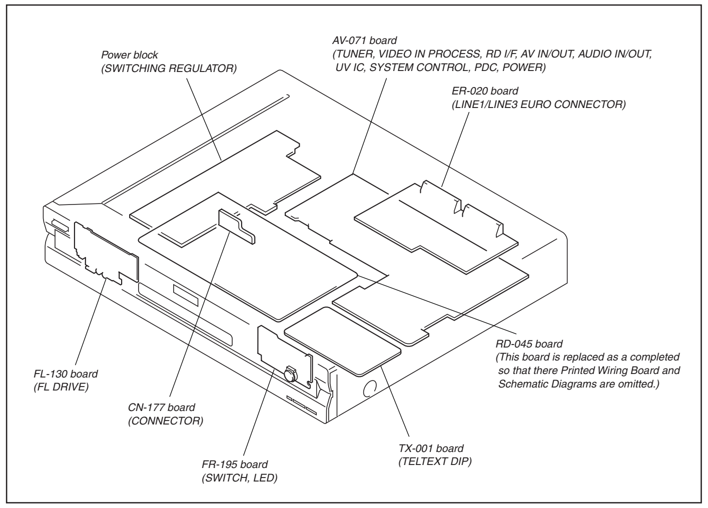

CN1000
1
9
2
8
C1002
L1001
X1000
52
27
IC1001
1
26
L1000
C1001
C1000
C1012
C1011
C1003
L1003
L1004

TX-001 BOARD (SIDE B)


JL1006
JL1002
JL1004
JL1000
JL1001
JL1008
JL1005
JL1007
JL1003
JR1030
JR1029
JR1028
JR1033
JR1032
JR1031
JR1036
JR1018
JL1009
JR1000
JR1026
R1027
JR1013
JR1012
C1019
C1018
R1020
JR1003
R1014
R1011
JL1012
C1015
C1013
Q1002
R1019
Q1001
JR1021
R1021
JR1035
C1050
C1014
R1012
R1013
Q1003
JR1015
R1008
JR1006
JR1005
JL1010
JR1022
JL1011
JR1023
C1009
C1007
C1017
JL1013
C1020
C1016
R1002
L1002
C1006
JR1008
JR1004
R1005
JR1014
R1010
JR1007
R1022
JR1024
R1004
R1006
R1007
R1009
C1005
C1010
R1023
Q1005
R1025
JR1026
R1027
R1024
C1004
JR1011
Q1000
IC1000
Q1004
JR1025

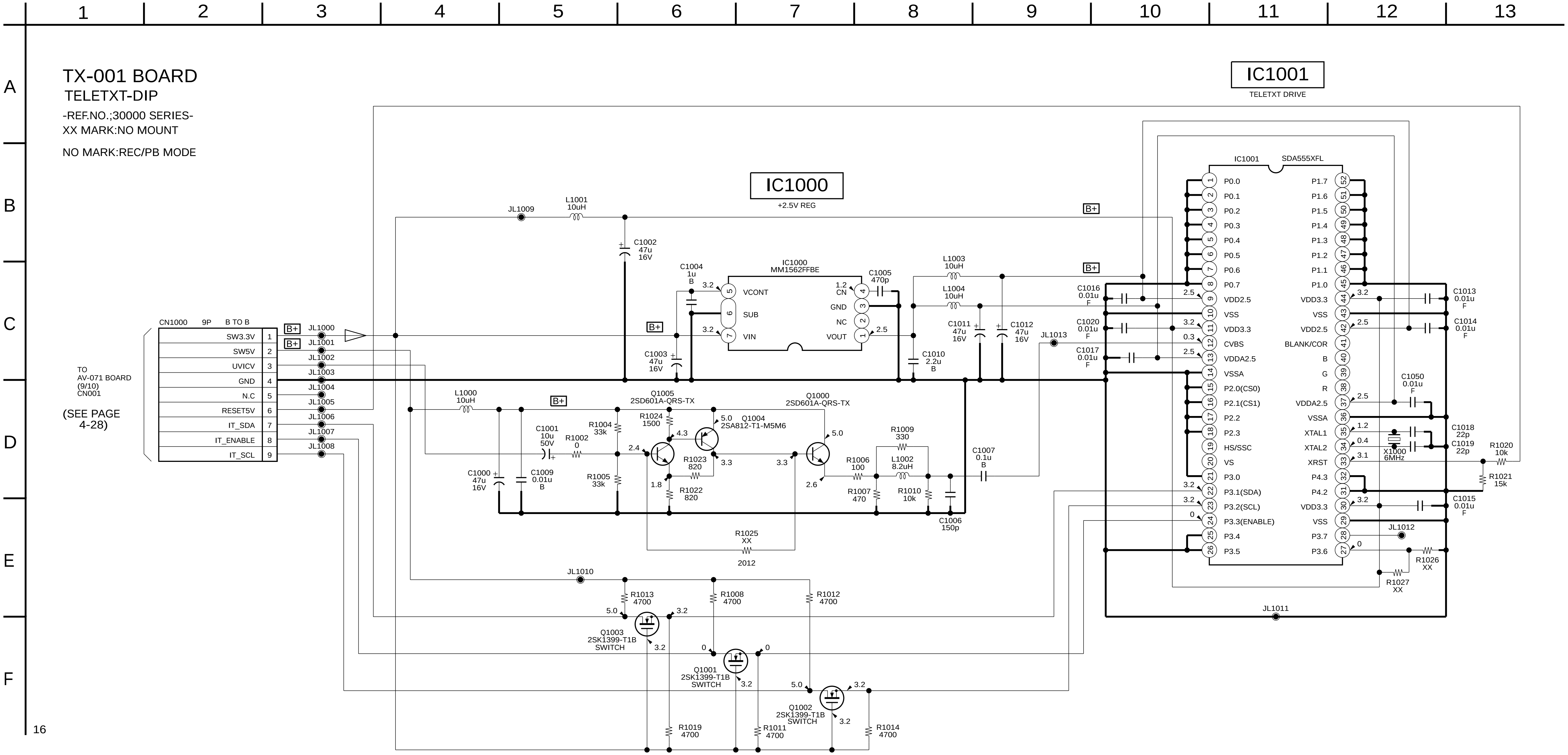
For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.


Power block
(SWITCHING REGULATOR)
AV-071 board
(TUNER, VIDEO IN PROCESS, RD I/F, AV IN/OUT, AUDIO IN/OUT,
UV IC, SYSTEM CONTROL, PDC, POWER)
ER-020 board
(LINE1/LINE3 EURO CONNECTOR)
RD-045 board
(This board is replaced as a completed so that there Printed Wiring Board and Schematic Diagrams are omitted.)
FL-130 board
(FL DRIVE)
CN-177 board
(CONNECTOR)
TX-001 board
(TELTEXT DIP)
FR-195 board
(SWITCH, LED)

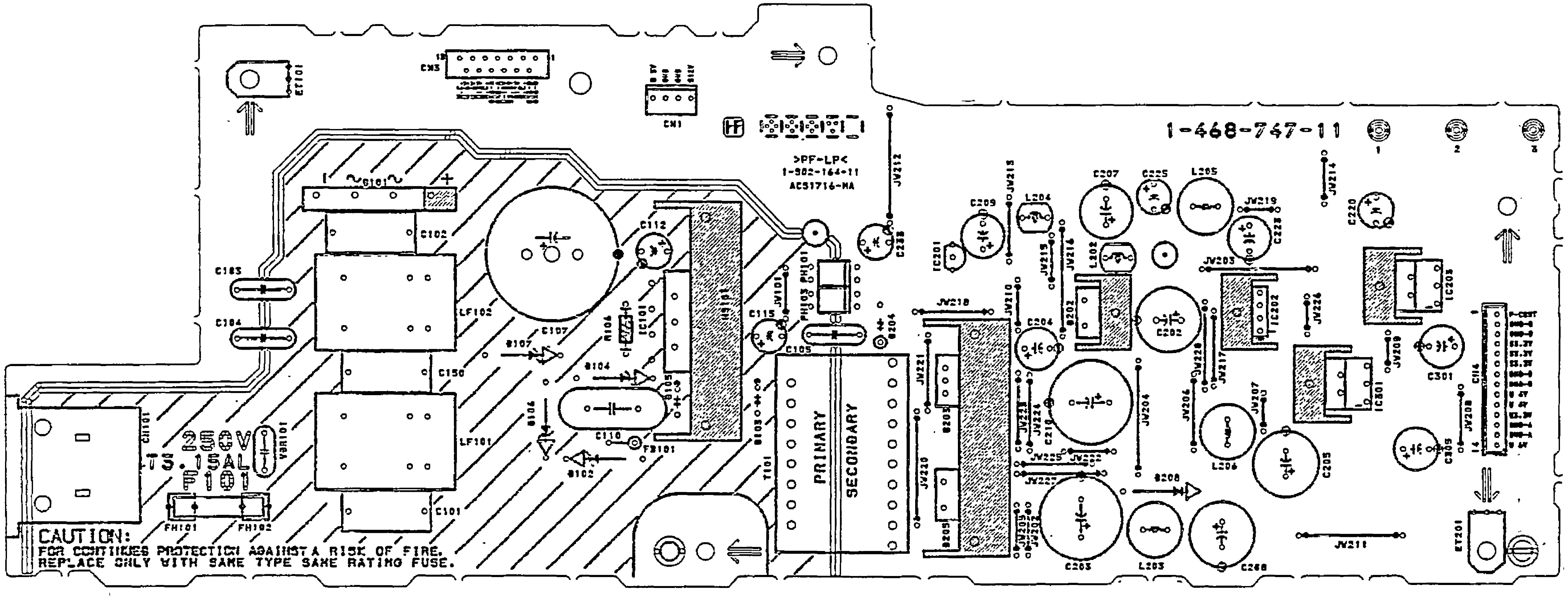
For Schematic Diagram

- Refer to page 4-51 for printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
TX-001 BOARD
TELETXT-DIP
-REF.NO.;30000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC1001
TELETXT DRIVE
IC1000
+2.5V REG
IC1001 SDA555XFL
IC1000 MM1562FFBE
VCONT
SUB
VIN
CN
GND
NC
VOUT
CN1000 9P B TO B
SW3.3V
SW5V
UVICV
GND
N.C
RESET5V
IT_SDA
IT_ENABLE
IT_SCL
TO AV-071 BOARD (9/10) CN001
(SEE PAGE 4-28)
JL1000
JL1001
JL1002
JL1003
JL1004
JL1005
JL1006
JL1007
JL1008
JL1009
JL1010
JL1011
JL1012
JL1013
B+
L1001 10uH
L1000 10uH
L1003 10uH
L1004 10uH
L1002 8.2uH
C1002 47u 16V
C1004 1u B
C1005 470p
C1003 47u 16V
C1011 47u 16V
C1012 47u 16V
C1010 2.2u B
C1016 0.01u F
C1020 0.01u F
C1017 0.01u F
C1013 0.01u F
C1014 0.01u F
C1050 0.01u F
C1018 22p
C1019 22p
C1015 0.01u F
C1000 47u 16V
C1009 0.01u B
C1001 10u 50V
C1007 0.1u B
C1006 150p
Q1005 2SD601A-QRS-TX
Q1004 2SA812-T1-M5M6
Q1000 2SD601A-QRS-TX
Q1003 2SK1399-T1B SWITCH
Q1001 2SK1399-T1B SWITCH
Q1002 2SK1399-T1B SWITCH
R1002 0
R1004 33k
R1005 33k
R1024 1500
R1023 820
R1022 820
R1025 XX 2012
R1006 100
R1007 470
R1009 330
R1010 10k
R1013 4700
R1008 4700
R1012 4700
R1019 4700
R1011 4700
R1014 4700
R1020 10k
R1021 15k
R1026 XX
R1027 XX
X1000 6MHz
P0.0
P0.1
P0.2
P0.3
P0.4
P0.5
P0.6
P0.7
VDD2.5
VSS
VDD3.3
CVBS
VDDA2.5
VSSA
P2.0(CS0)
P2.1(CS1)
P2.2
P2.3
HS/SSC
VS
P3.0
P3.1(SDA)
P3.2(SCL)
P3.3(ENABLE)
P3.4
P3.5
P1.7
P1.6
P1.5
P1.4
P1.3
P1.2
P1.1
P1.0
VDD3.3
VSS
VDD2.5
BLANK/COR
B
G
R
VDDA2.5
VSSA
XTAL1
XTAL2
XRST
P4.3
P4.2
VDD3.3
VSS
P3.7
P3.6
16

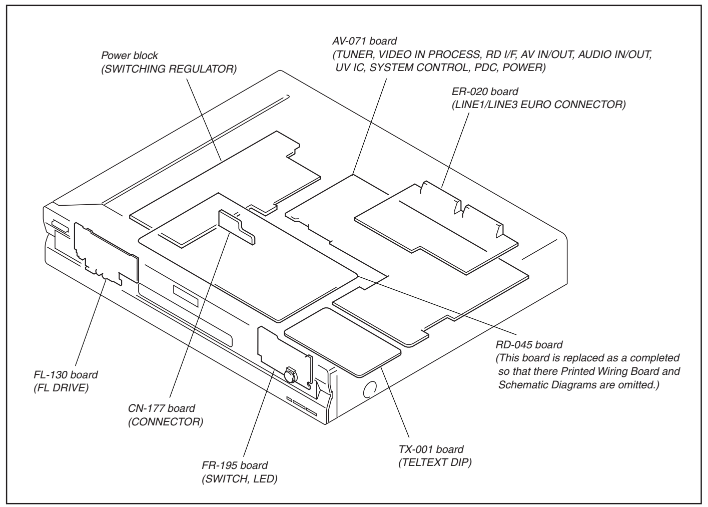
POWER (POWER SUPPLY BLOCK) PRINTED WIRING BOARD

• LF : Uses unleaded solder.

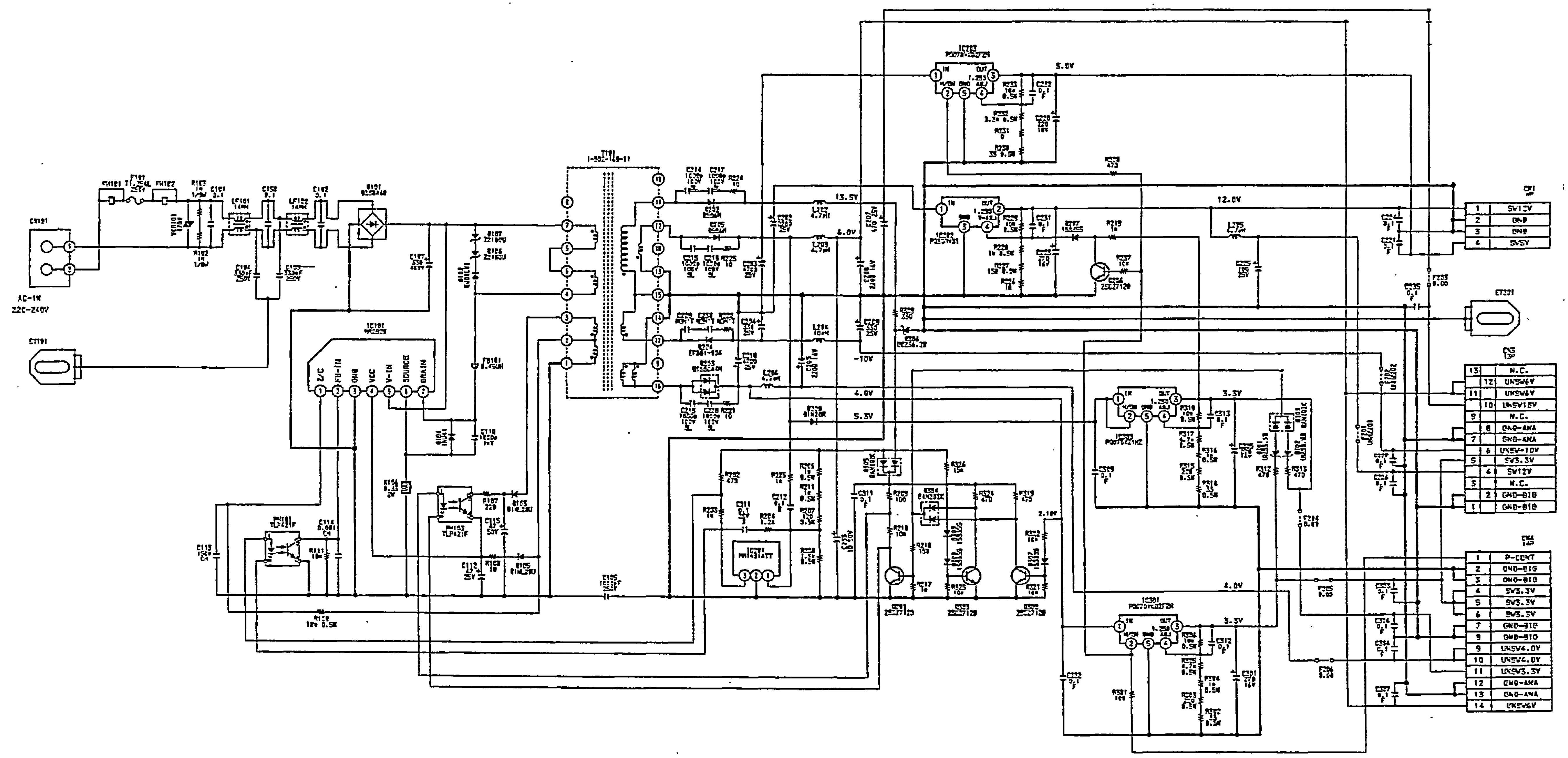

CN3
CN1
ET101
1-468-747-11
>PF-LP<
1-902-164-11
ACS1716-MA
C101
C102
C103
C104
C105
C107
C110
C112
C115
C150
LF101
LF102
CN101
VDR101
T3.15AL 250V
F101
FH101
FH102
PH101
T101
PRIMARY
SECONDARY
IC101
IC201
IC202
IC203
IC301
CN114
ET201
1
2
3
CAUTION:
FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE.
REPLACE ONLY WITH SAME TYPE SAME RATING FUSE.

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.


Power block
(SWITCHING REGULATOR)
AV-071 board
(TUNER, VIDEO IN PROCESS, RD I/F, AV IN/OUT, AUDIO IN/OUT, UV IC, SYSTEM CONTROL, PDC, POWER)
ER-020 board
(LINE1/LINE3 EURO CONNECTOR)
RD-045 board
(This board is replaced as a completed so that there Printed Wiring Board and Schematic Diagrams are omitted.)
FL-130 board
(FL DRIVE)
CN-177 board
(CONNECTOR)
FR-195 board
(SWITCH, LED)
TX-001 board
(TELTEXT DIP)

For Schematic Diagram
- Refer to page 4-55 for printed wiring board.


CN101
AC-IN
220-240V
ET101
IC101
T101
IC203
5.0V
13.5V
12.0V
6.0V
-10V
4.0V
5.3V
3.3V
2.10V
IC201
IC301
CN1
4P
1 SW12V
2 GND
3 GND
4 SW5V
ET201
CN3
13P
13 N.C.
12 UNSW6V
11 UNSW6V
10 UNSW13V
9 N.C.
8 GND-ANA
7 GND-ANA
6 UNSW-10V
5 SW3.3V
4 SW12V
3 N.C.
2 GND-DIG
1 GND-DIG
CN4
14P
1 P-CONT
2 GND-DIG
3 GND-DIG
4 SW3.3V
5 SW3.3V
6 SW3.3V
7 GND-DIG
8 GND-DIG
9 UNSW4.0V
10 UNSW4.0V
11 UNSW3.3V
12 GND-ANA
13 GND-ANA
14 UNSW6V

MEMO

SECTION 5
IC PIN FUNCTION DESCRIPTION

5-1. IT CONTROL IC (IC605: μPD703033BYGF-M29-3BA-A (AV-071 BOARD))

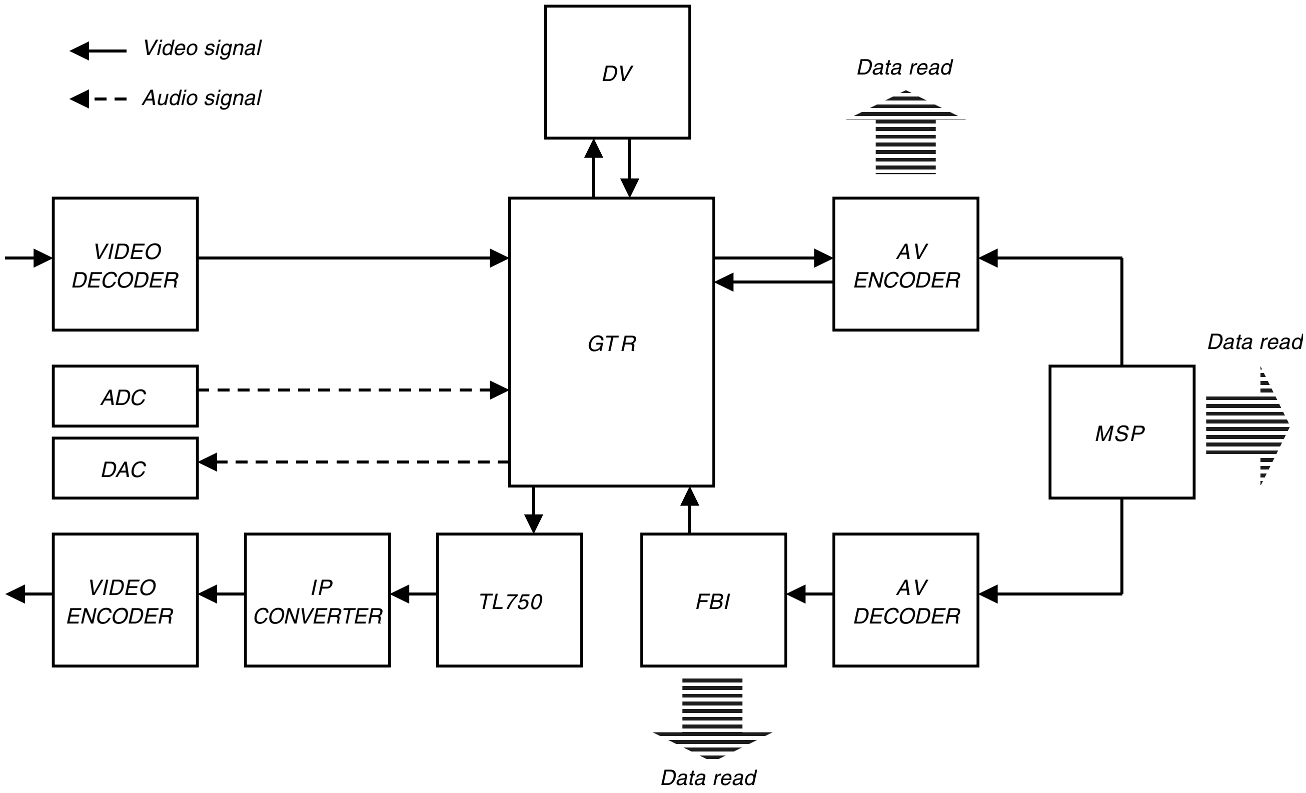
Pin No.	Pin Name	I/O	Function
1	SOUT	O	Serial data output
2	SCLK		Serial clock
3	IIC1 SDA	I/O	IIC data input/output
4	IIC SW for GR		IIC bus switch control
5	IIC1 SCL	O	IIC clock output
6	IT SIN	I	Input of Communication data with SH
7	IT SOUT	O	Output of communication data with SH
8	IT SCLK	O	Output of communication clock with SH
9	EVDD	–	
10	EVSS	–	
11	LED LCK	O	LED serial/parallel latch output
12	BUZZER	O	Buzzer output
13	SIRCS in	I	Remote control output
14	FL PCONT		FL power supply ON/OFF
15	FLD IN		
16	FLD DATA		FLD driver data
17	FLD CLK		FLD driver clock
18	FLD XRST		Reset for FLD driver
19	FLD CS		CS for FLD driver
20	F MONO		Switching to monaural
21	VPP	–	
22	AV LINK OUT	O	AVLINK output
23	XL3MUTE		
24	EEP WP		Write protect
25	DIMMER		Dimmer pulse
26	RESET5V	O	Reset output to 5V series LSI
27	UVIC CS		
28	IT XRST	O	Reset output to SH
29	XFLMRST		Flash memory reset
30	STATUS0	I	SH status input
31	STATUS1	I	SH status input
32	AWAKE	O	AWAKE request to SH
33	AWAKE DONE	I	Input of SH wake up state
34	RESET	I	Reset input
35	XT1		Oscillation
36	XT2		Oscillation
37	REGC		
38	X1		
39	X2		
40	VSS		
41	VDD		
42	CLKOUT		
43	XNENTMUTE		Muting components
44	VYL1		L1 terminal V/Y switching
45	VYL3		L3 terminal V/Y switching
46	TUDVD		Tuner/DVD switching
47	XRGBSEL		RGB/YV switching
48	CDINSEL		INSEL switching to C+dec
49	DVDEXT		DVD (this unit)/external
50	RELAY		Relay control

Pin No.	Pin Name	I/O	Function
51	H DET		With sync / no sync
52	DSEL(CMUTE)		Mute of C+ signal
53	Syncro Power		Power supply ON during Syncro standby
54	YC SEP ON		YC sep circuit ON/OFF
55	S2SW		With S PIN input
56	L1 SEL		
57	XP MUTE		Audio mute
58	BDVV		
59	BVSS		
60	MAIN/SAP		Sound multiplex MSP
61	SAP DET		
62	JUST CLK		
63	AUTO PRESET		
64	TA MUTE		
65	TU PCONT		Tuner power supply control
66	TU V DET		With V sync/no V sync
67	INSEL1		Output switching
68	INSEL2		Output switching
69	INSEL TU		Output switching
70	FAN SPEED		Speed switching
71	FAN ONOFF		FAN ON/OFF
72	RELAY CONT		AC relay ON/OFF
73	IDET		With L3 Icont/no L3 Icont
74	AVDD		
75	AVSS		
76	Avref		
77	AREA		Abbreviation
78	FAN DET		FAN stopping detection
79	KEY1		
80	KEY2		
81	KEY3		
82	KEY4		
83	KEY5		
84	TU AFT		
85	EURO 8DET		L3 8PIN input
86	STEREO DET		
87	AGC		Tuner gain
88	ONDO		Temperature detection
89	iMute		Mute ICONT signal
90	P FAIL		AC off detection
91	IT REQ	I	Request input from SH
92	SYNC V	I	V sync input
93	XPDCDAV		PDC data reception OK
94	AV LINK IN	I	AV LINK input
95	UVIC BUSY		
96	TTXT ENABLE		
97	TTXT SDA		TTXT data
98	WIDE		Wide switching
99	TTXT SCL		TTNT clock
100	SIN	I	Serial data input

SECTION 6
SERVICE MODE

This is the diagnostics to locate the faulty position.
The diagnostics can be executed using the remote commander (Remote Control Mode1) and a monitor.
To execute the diagnostics mode, connect the VIDEO OUT (L2 OUT) connector to a monitor. While pressing INPUT SELECT, REC MODE and STOP of the main unit, connect the AC power cord to the power outlet to start the diagnostics.
Keep pressing INPUT SELECT, REC MODE and STOP of the main unit (about 10 seconds) until the diagnostics screen appears on monitor display.
Either "OK" or "NG" appears on the monitor screen while the diagnostics is in progress. You can judge the respective device or its peripheral from the message of either "OK" or "NG" on the monitor screen.
When an abnormality is detected, the diagnostics is stopped at that moment and you can select to proceed the diagnostics or to stop it.
Use the remote commander (DVD1) keys or the keys on the front panel of the main unit to operate the diagnostics.

6-1. Device relation diagram.
Display data (for your reference to check the signal path)

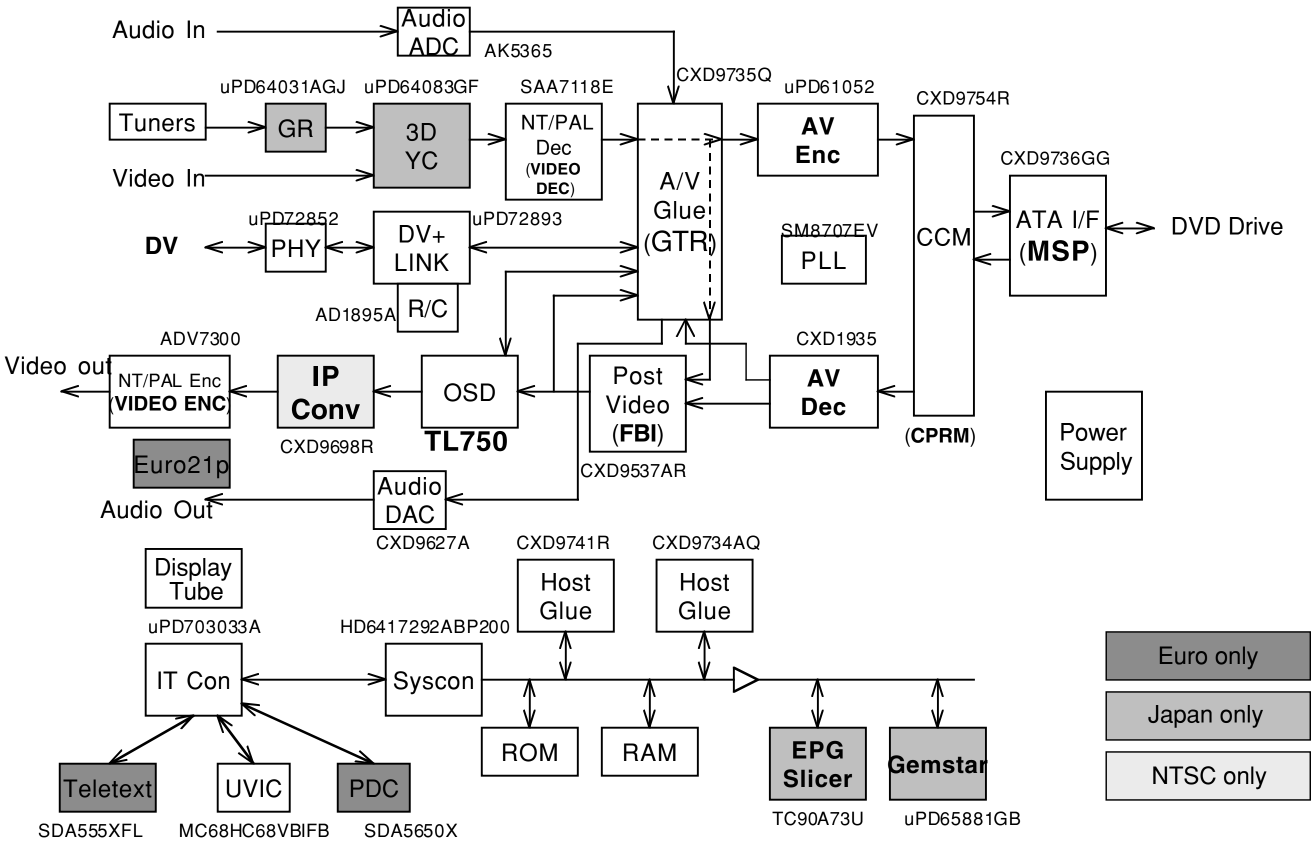


Checking item	IC name	REF
VIDEO ENC	IC ADV7300AKST	IC2303
IP CONV	IC CXD9698R	IC2301
TL750	IC TL750B5	IC1402
GTR	IC CXD9735Q	IC701
FBI	IC CXD9537AR	IC1301
VIDEO DEC	IC SAA7118E/V1.518	IC2202
AVENC	IC UPD61052GD-LML	IC903
MSP	IC CXD9736GG	IC1101
AVDEC	IC CXD1935Q	IC1203
DV	IC UPD72852GB-8EU	IC2001
	IC UPD72893GD-LML	IC2102
CPRM	IC CXD9754R	IC1001
CCM		
EPGSLICER	IC TC90A73U	IC1802
GEMSTAR	IC UPD65881GB-072-8ES	IC1807

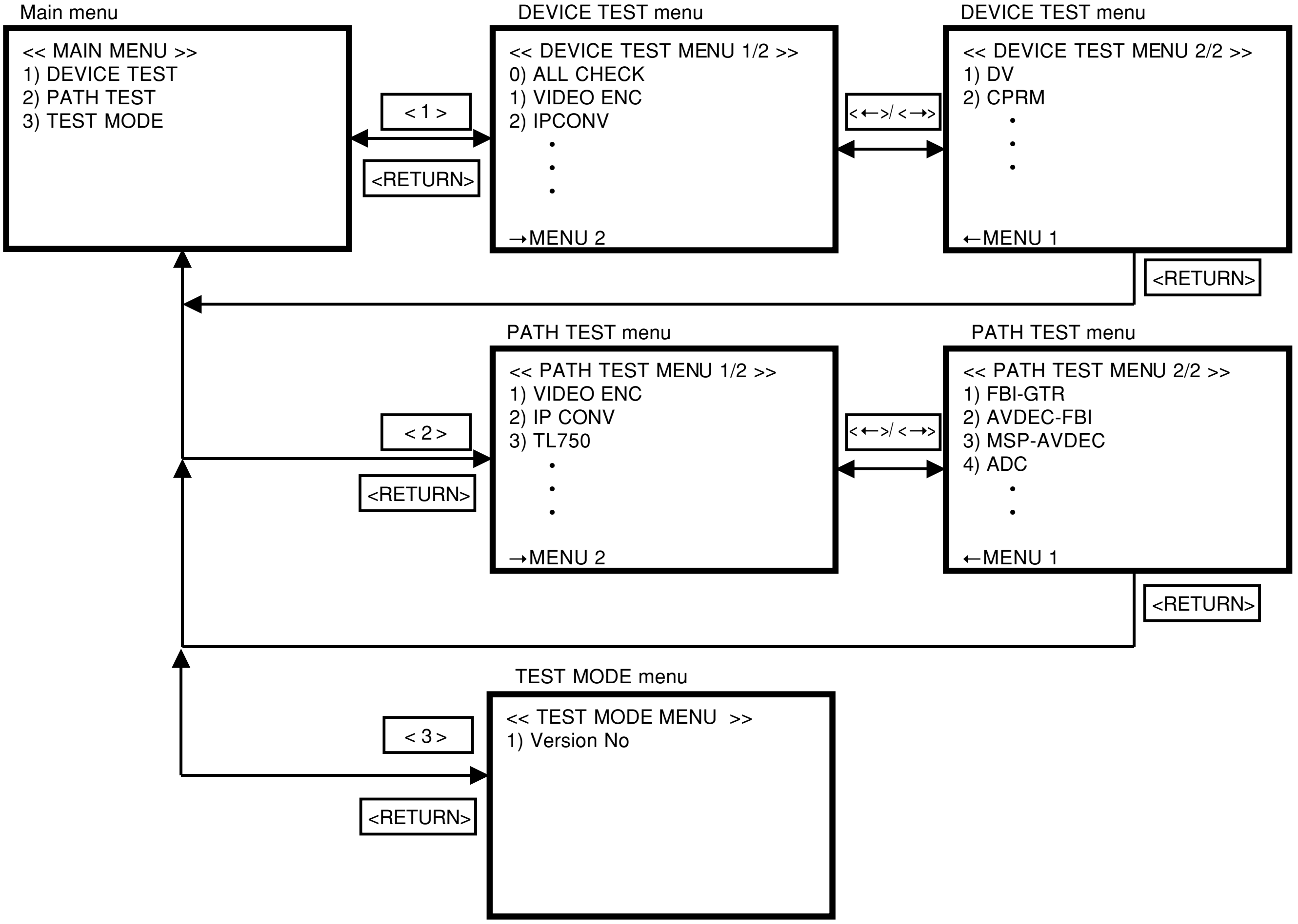
All parts are mounted on the RD045M'T assembly.

If NG is displayed as the result of DEVICE test, IC is defective or peripheral of the IC is defective.
If NG is displayed as the result of "PATH" test, defect exists in between ICs.

6-2. Block diagram (for your reference to check the devices)

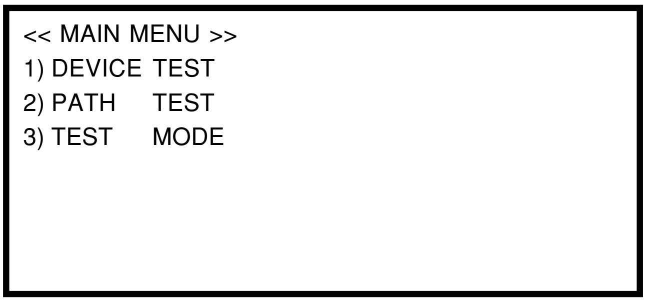

Audio In
Audio ADC
AK5365
CXD9735Q
uPD64031AGJ
uPD64083GF
SAA7118E
uPD61052
CXD9754R
Tuners
GR
3D YC
NT/PAL Dec (VIDEO DEC)
A/V Glue (GTR)
AV Enc
Video In
CXD9736GG
ATA I/F (MSP)
DVD Drive
uPD72852
uPD72893
DV
PHY
DV+ LINK
SM8707EV
PLL
CCM
AD1895A
R/C
ADV7300
CXD1935
Video out
NT/PAL Enc (VIDEO ENC)
IP Conv
OSD
Post Video (FBI)
AV Dec
CXD9698R
TL750
(CPRM)
Power Supply
Euro21p
CXD9537AR
Audio Out
Audio DAC
CXD9627A
CXD9741R
CXD9734AQ
Display Tube
Host Glue
Host Glue
uPD703033A
HD6417292ABP200
IT Con
Syscon
Euro only
Japan only
NTSC only
ROM
RAM
EPG Slicer
Gemstar
Teletext
UVIC
PDC
TC90A73U
uPD65881GB
SDA555XFL
MC68HC68VBIFB
SDA5650X

6-3. Screen Transition in the Service Mode


Main menu
<< MAIN MENU >>
1) DEVICE TEST
2) PATH TEST
3) TEST MODE
< 1 >
<RETURN>
DEVICE TEST menu
<< DEVICE TEST MENU 1/2 >>
0) ALL CHECK
1) VIDEO ENC
2) IPCONV
→MENU 2
<←>/<→>
DEVICE TEST menu
<< DEVICE TEST MENU 2/2 >>
1) DV
2) CPRM
←MENU 1
<RETURN>
PATH TEST menu
<< PATH TEST MENU 1/2 >>
1) VIDEO ENC
2) IP CONV
3) TL750
→MENU 2
< 2 >
<RETURN>
<←>/<→>
PATH TEST menu
<< PATH TEST MENU 2/2 >>
1) FBI-GTR
2) AVDEC-FBI
3) MSP-AVDEC
4) ADC
←MENU 1
<RETURN>
TEST MODE menu
<< TEST MODE MENU >>
1) Version No
< 3 >
<RETURN>

6-4. Service Mode. Menu Items and Description

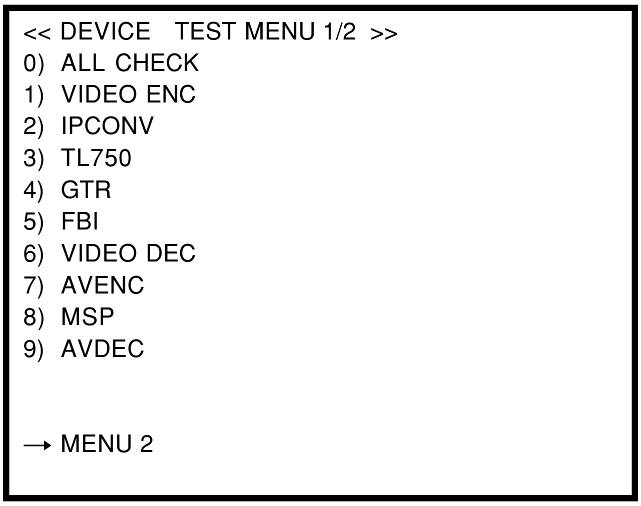
1) When the key ‘1’ is pressed down, the monitor display moves to the device check menu screen.
2) When the key ‘2’ is pressed down, the monitor display moves to the path check menu screen between devices.
3) When the key ‘3’ is pressed down, the monitor display moves to the version check screen.



```
<< MAIN MENU >>
1) DEVICE  TEST
2) PATH    TEST
3) TEST    MODE
```

6-5. Device Check Menu (1/2)

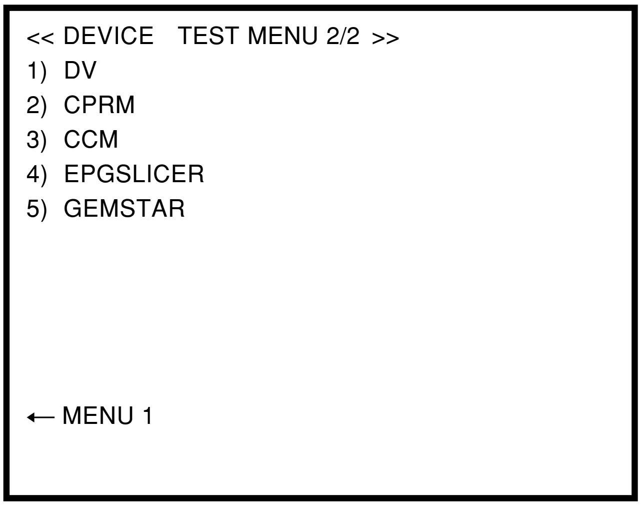
0) When the key ‘0’ is pressed down, all devices are checked automatically.
1) When the key ‘1’ is pressed down, the VIDEOENC device check will be executed.
2) When the key ‘2’ is pressed down, the IPCONV device check will be executed. (This item is not installed in the EURO models, NG is displayed but it is not indicating any default of the main unit.)
3) When the key ‘3’ is pressed down, the TL750 device check will be executed.
4) When the key ‘4’ is pressed down, the GTR device check will be executed.
5) When the key ‘5’ is pressed down, the FBI device check will be executed.
6) When the key ‘6’ is pressed down, the VIDEODEC device check will be executed.
7) When the key ‘7’ is pressed down, the AVENC device check will be executed.
8) When the key ‘8’ is pressed down, the MSP device check will be executed.
9) When the key ‘9’ is pressed down, the AVDEC device check will be executed.
10) When the key ‘→’ is pressed down, the monitor display moves to the next path check menu screen.



```
<< DEVICE   TEST MENU 1/2  >>
0)  ALL CHECK
1)  VIDEO ENC
2)  IPCONV
3)  TL750
4)  GTR
5)  FBI
6)  VIDEO DEC
7)  AVENC
8)  MSP
9)  AVDEC


→ MENU 2
```

6-6. Device Check Menu (2/2)

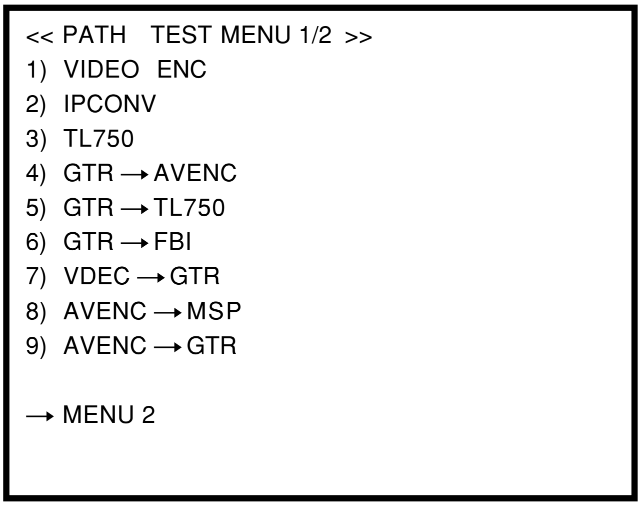
1) When the key ‘1’ is pressed down, the DV device check will be executed.
2) When the key ‘2’ is pressed down, the CPRM device check will be executed.
3) When the key ‘3’ is pressed down, the CCM device check will be executed.
4) When the key ‘4’ is pressed down, the EPGSLICER device check will be executed. (This item is not installed in the EURO models, NG is displayed but it is not indicating any default of the main unit.)
5) When the key ‘5’ is pressed down, the GEMSTAR device check will be executed. (This item is not installed in the EURO models, NG is displayed but it is not indicating any default of the main unit.)
6) When the key ‘←’ is pressed down, the monitor display returns to the previous device check menu screen.



```
<< DEVICE   TEST MENU 2/2  >>
1)  DV
2)  CPRM
3)  CCM
4)  EPGSLICER
5)  GEMSTAR




← MENU 1
```

6-7. Path Check Menu (1/2)

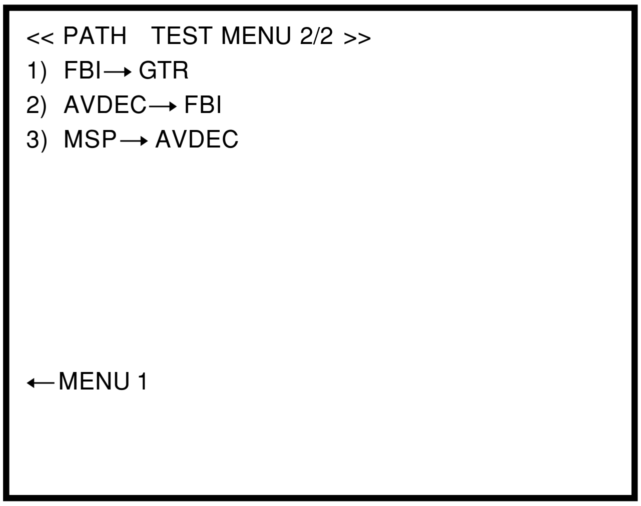
1) When the key ‘1’ is pressed down, VIDEOENC path check is executed.
2) When the key ‘2’ is pressed down, IPCONV path check is executed. (This item is not installed in the EURO models, NG is displayed but it is not indicating any default of the main unit.)
3) When the key ‘3’ is pressed down, TL750 path check is executed.
4) When the key ‘4’ is pressed down, path check from GTR → AVENC is executed.
5) When the key ‘5’ is pressed down, path check from GTR → TL750 is executed.
6) When the key ‘6’ is pressed down, path check from GTR → FBI is executed.
7) When the key ‘7’ is pressed down, path check from VDEC → GTR is executed.
8) When the key ‘8’ is pressed down, path check from AVENC → MSP is executed.
9) When the key ‘9’ is pressed down, path check from AVENC → GTR is executed.
10) When the key ‘→’ is pressed down, the monitor display moves to the previous device check menu screen.



```
<< PATH   TEST MENU 1/2  >>
1)  VIDEO  ENC
2)  IPCONV
3)  TL750
4)  GTR → AVENC
5)  GTR → TL750
6)  GTR → FBI
7)  VDEC → GTR
8)  AVENC → MSP
9)  AVENC → GTR

→ MENU 2
```

6-8. Path Check Menu (2/2)

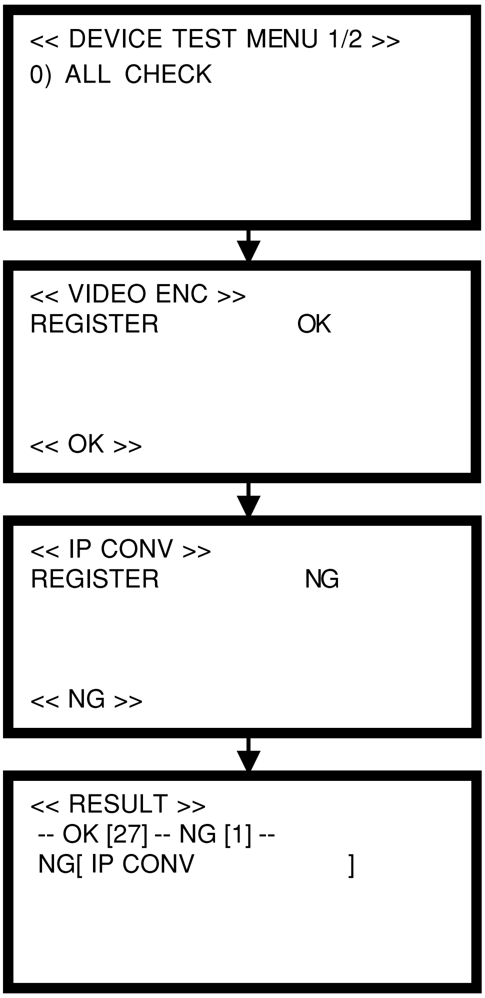
1) When the key ‘1’ is pressed down, path check from FBI→GTR is executed.
2) When the key ‘2’ is pressed down, path check from AVDEC → FBI is executed.
3) When the key ‘3’ is pressed down, path check from MSP → AVDEC is executed.
4) When the key ‘←’ is pressed down, the monitor display returns to the previous path check menu screen.



```
<< PATH   TEST MENU 2/2  >>
1)  FBI → GTR
2)  AVDEC → FBI
3)  MSP → AVDEC






← MENU 1
```

6-9. Device All Check. Screen Transition

1. Select the item “ALL CHECK” from the menu.
2. Device check is executed automatically starting from No. 1 one device after another.
3. When all devices are checked, number of OK/NG items and names of the NG devices are displayed as the RESULT.
4. When the ENTER key of the remote commander is pressed, the monitor display returns to the menu screen.



```
<< DEVICE TEST MENU 1/2 >>
0) ALL CHECK
```

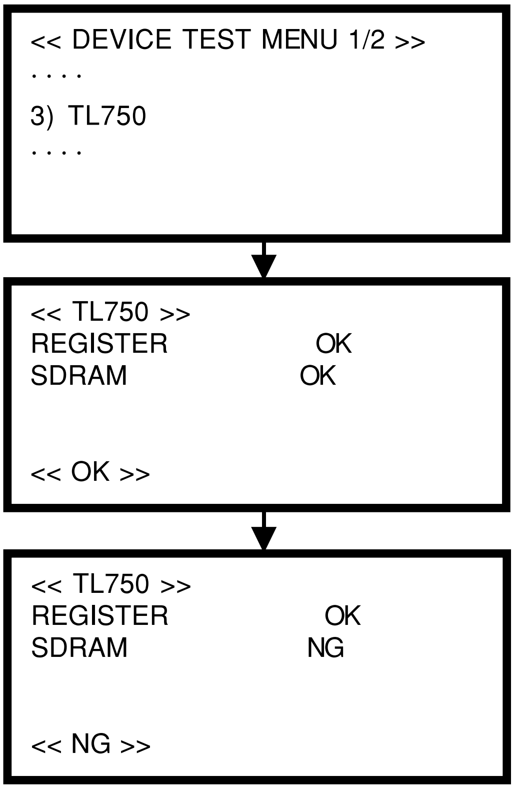
```
<< VIDEO ENC >>
REGISTER              OK

<< OK >>
```

```
<< IP CONV >>
REGISTER               NG

<< NG >>
```

```
<< RESULT >>
 -- OK [27] -- NG [1] --
 NG[ IP CONV                  ]
```

6-10. Device Individual Check. Screen Transition

1. Select the TL750 item from the menu.
2. The register read/write that is the first item of the check is executed and its result is displayed.
3. The SDRAM check that is the second item of the check is executed and its result is displayed.
4. When check results of all items are OK, the message OK is displayed. If any one of the check items is found NG, the message NG is displayed.
5. When the ENTER key is pressed, the monitor display moves the to the menu screen.



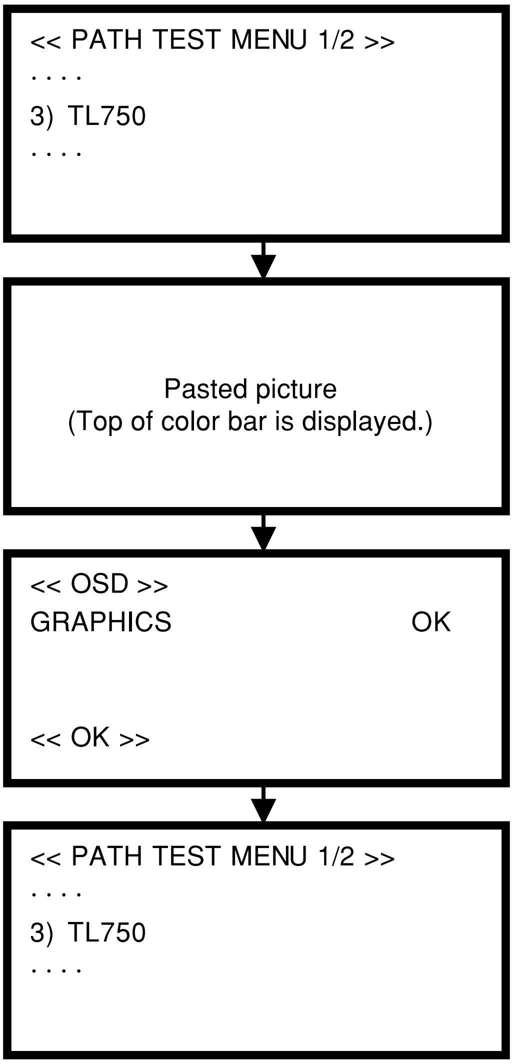
```
<< DEVICE TEST MENU 1/2 >>
. . . .
3) TL750
. . . .
```

```
<< TL750 >>
REGISTER               OK
SDRAM                 OK

<< OK >>
```

```
<< TL750 >>
REGISTER                OK
SDRAM                  NG

<< NG >>
```

6-11. Path Individual Check (Pasted Screen Check). Screen Transition

1. Select the TL750 item from the menu.
2. The device pasted screen (top of the color bar) is displayed. (When visual check is required, the display does not move the judgment screen but remains displaying the picture.
3. When the ENTER key is pressed, the monitor display moves the to the judgment screen.
4. When the ENTER key is pressed on the judgment screen again, the monitor display moves the to the menu screen.



<< PATH TEST MENU 1/2 >>
. . . .
3) TL750
. . . .

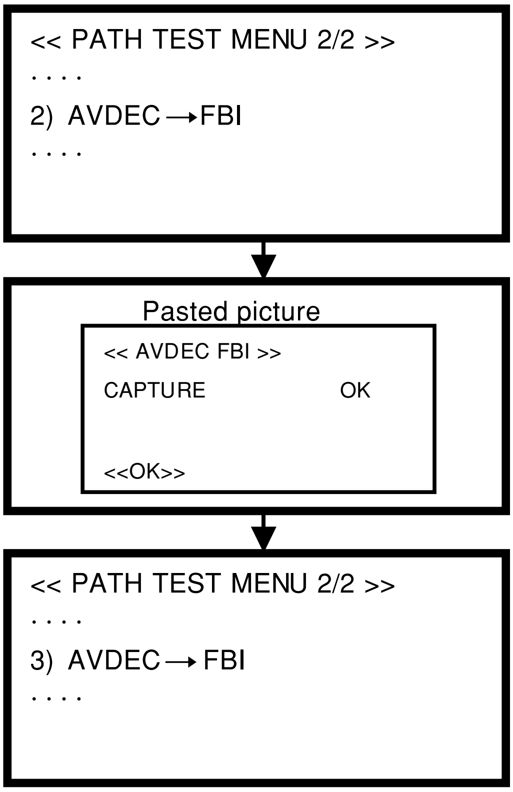
Pasted picture
(Top of color bar is displayed.)

<< OSD >>
GRAPHICS OK
<< OK >>

<< PATH TEST MENU 1/2 >>
. . . .
3) TL750
. . . .

6-12. Path Individual Check (Data Check Confirmation). Screen Transition

1. Select the check item “AVDEC → FBI” from the menu.
2. The path check is executed and result of judgment is displayed.
3. When the ENTER key is pressed on the judgment screen again, the monitor display moves the to the menu screen.



<< PATH TEST MENU 2/2 >>
. . . .
2) AVDEC → FBI
. . . .

Pasted picture
<< AVDEC FBI >>
CAPTURE OK
<<OK>>

<< PATH TEST MENU 2/2 >>
. . . .
3) AVDEC → FBI
. . . .

SECTION 7
ADJUSTMENT

7-1. VIDEO SYSTEM ADJUSTMENT

Reference Disk

HLX-505 (PAL	Single layer disk)	J-6090-077-A
HLX-504 (PAL	Dual layer disk)	J-6090-078-A

1. Video Level Adjustment (RD-045 Board)

< Purpose >

This adjustment is made to satisfy the NTSC standard. If it is adjusted incorrectly, brightness will be too bright or too dark.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	LINE OUT (VIDEO) connector (terminated in 75Ω)
Instrument	Oscilloscope
Adjusting element	RV2301
Specification	$1.00^{+0.04}_{-0.02}$ Vp-p

Adjusting method:

1) Insert the reference disk and play back the 100% colour bars.

2) Adjust RV2301 for 1.0 Vp-p.

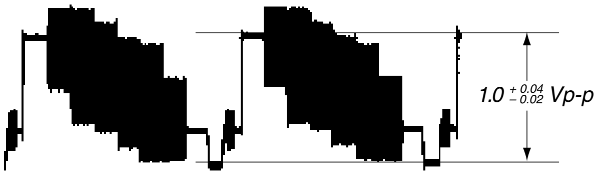


Fig. 7-1

2. Component Video Output Level Adjustment (RD-045 board)

< Purpose >

This is the adjustment for component video output. If this adjustment is made incorrectly, brightness of the component signal that is connected to the projector having COMPONENT input will have incorrect brightness.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	COMPONENT VIDEO OUT (Y) connector (terminated in 75Ω)
Instrument	Oscilloscope
Adjusting element	RV2302
Specification	$1.00^{+0.04}_{-0.02}$ Vp-p

Adjusting method:

1) Insert the reference disk and play back the 100% colour bars.

2) Check that the Y level is $1.00^{+0.04}_{-0.02}$ Vp-p.

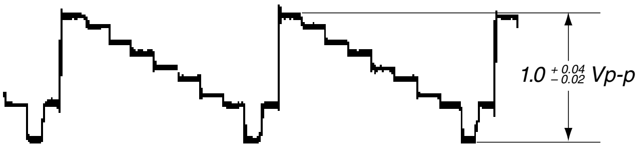


Fig. 7-2

3. S-Video Output S-Y Level Check

< Purpose >

This check confirms that the video output level at the S-video output connector is correct. If this adjustment is made incorrectly, picture will not be displayed correctly when the S-video connector output signal is connected to TV using cable.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	S-VIDEO OUT (S-Y) connector (terminated in 75Ω)
Instrument	Oscilloscope
Specification	1.0 ± 0.05Vp-p

Adjusting method:

1) Insert the reference disk and play back the 100% colour bars.

2) Check that the S-Y level is 1.0 ± 0.05 Vp-p.

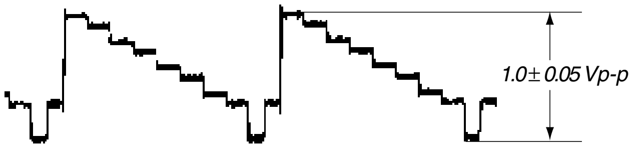


Fig. 7-3

4. S-Video Output S-C Check

< Purpose >

This check confirms that the S-video output S-C conforms to the NTSC standard. If it is adjusted incorrectly, colour will be too dark or too thin.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	S-VIDEO OUT (S-C) connector (terminated in 75Ω)
Instrument	Oscilloscope
Specification	300 ± 30mVp-p

Checking method:

1) Insert the reference disk and play back the 100% colour bars.

2) Confirm that the burst signal level of S-C is 300 ± 30mVp-p.

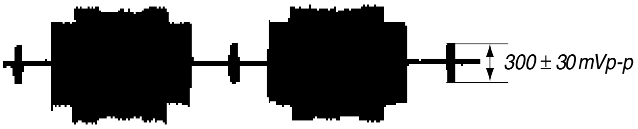


Fig. 7-4

5. Component Video Output Y Check

< Purpose >

This check confirms that the Y signal output is correct. If this signal level is not correct, brightness of video signal will be too bright or too dark when the COMPONENT connector output signal is connected the projector having COMPONENT input.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	COMPONENT VIDEO OUT (Y) connector, D1/D2 VIDEO OUT connector, pin-① (terminated in 75Ω)
Instrument	Oscilloscope
Specification	1.0 ± 0.05 Vp-p

Checking method:

1) Insert the reference disk and play back the 100% colour bars.

2) Check that the Y level is 1.0 ± 0.05 Vp-p.

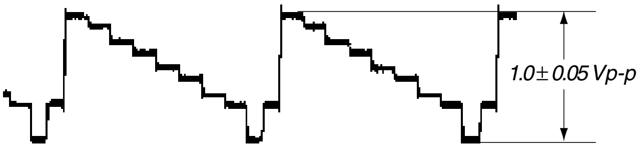


Fig. 7-5

6. Component Video Output B-Y Check

< Purpose >

This check confirms that the B-Y signal of the component video output is correct. If this signal level is not correct, colour of the video signal will have different colour when the COMPONENT connector output signal is connected the projector having COMPONENT input.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	COMPONENT VIDEO OUT (PB/CB) connector, D1/D2 VIDEO OUT connector, pin-③ (terminated in 75Ω)
Instrument	Oscilloscope
Specification	700 ± 50 mVp-p

Checking method:

1) Insert the reference disk and play back the 100% colour bars.

2) Confirm that the B-Y level is 700 ± 50 mVp-p.

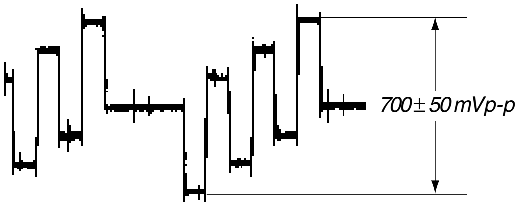


Fig. 7-6

7. Component Video Output R-Y Check

< Purpose >

This check confirms that the R-Y signal of the component video output is correct. If this signal level is not correct, colour of the video signal will have different colour when the COMPONENT connector output signal is connected the projector having COMPONENT input.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	COMPONENT VIDEO OUT (PR/CR) connector, D1/D2 VIDEO OUT connector, pin-⑤ (terminated in 75Ω)
Instrument	Oscilloscope
Specification	700 ± 50 mVp-p

Checking method:

1) Insert the reference disk and play back the 100% colour bars.

2) Confirm that the R-Y level is 700 ± 50 mVp-p.

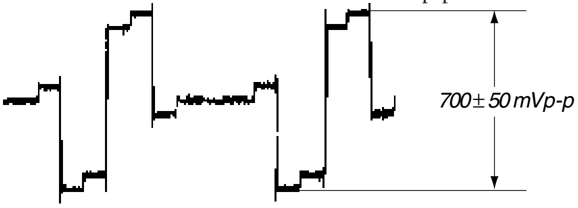


Fig. 7-7

SECTION 8
REPAIR PARTS LIST

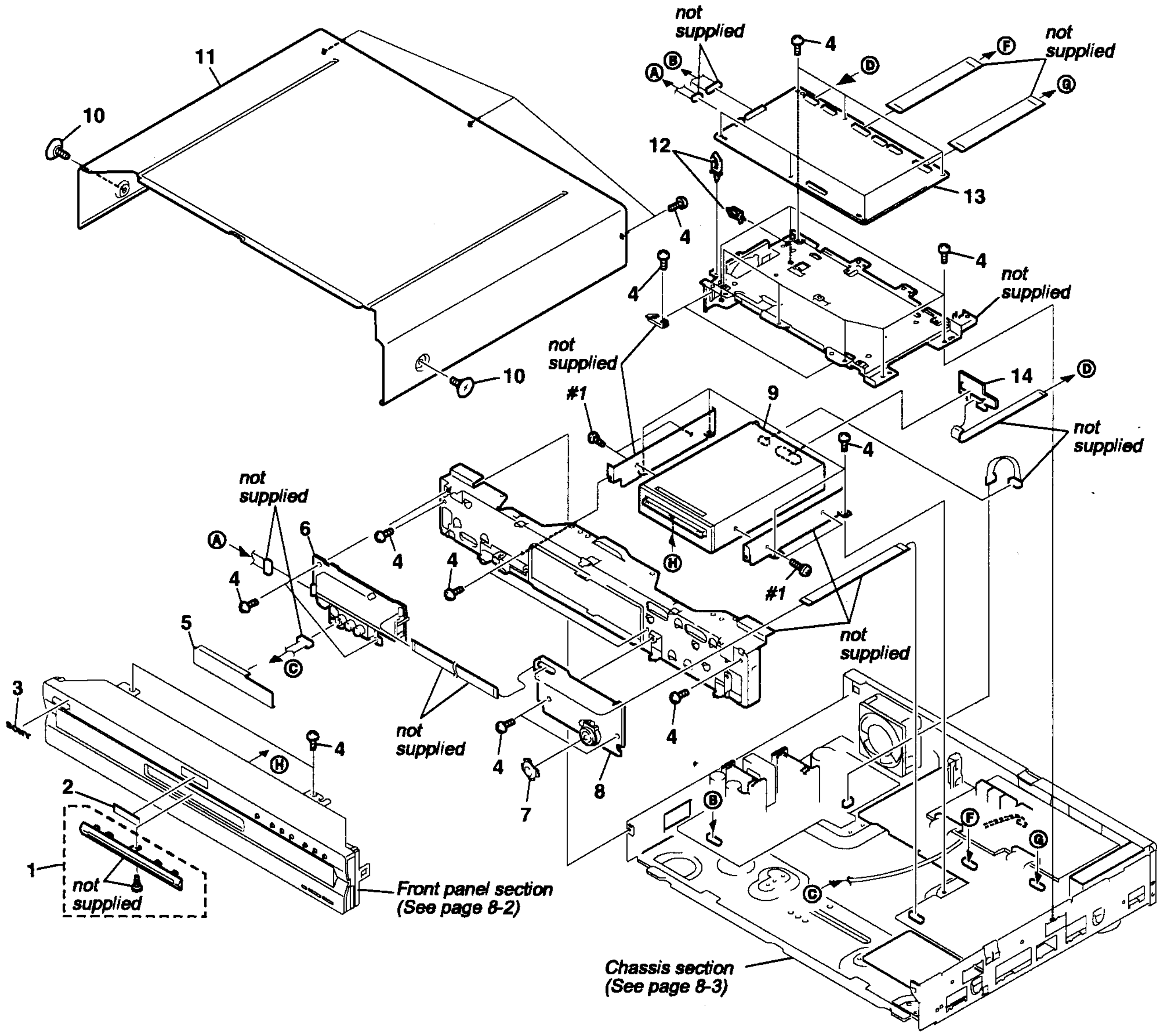
8-1. EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

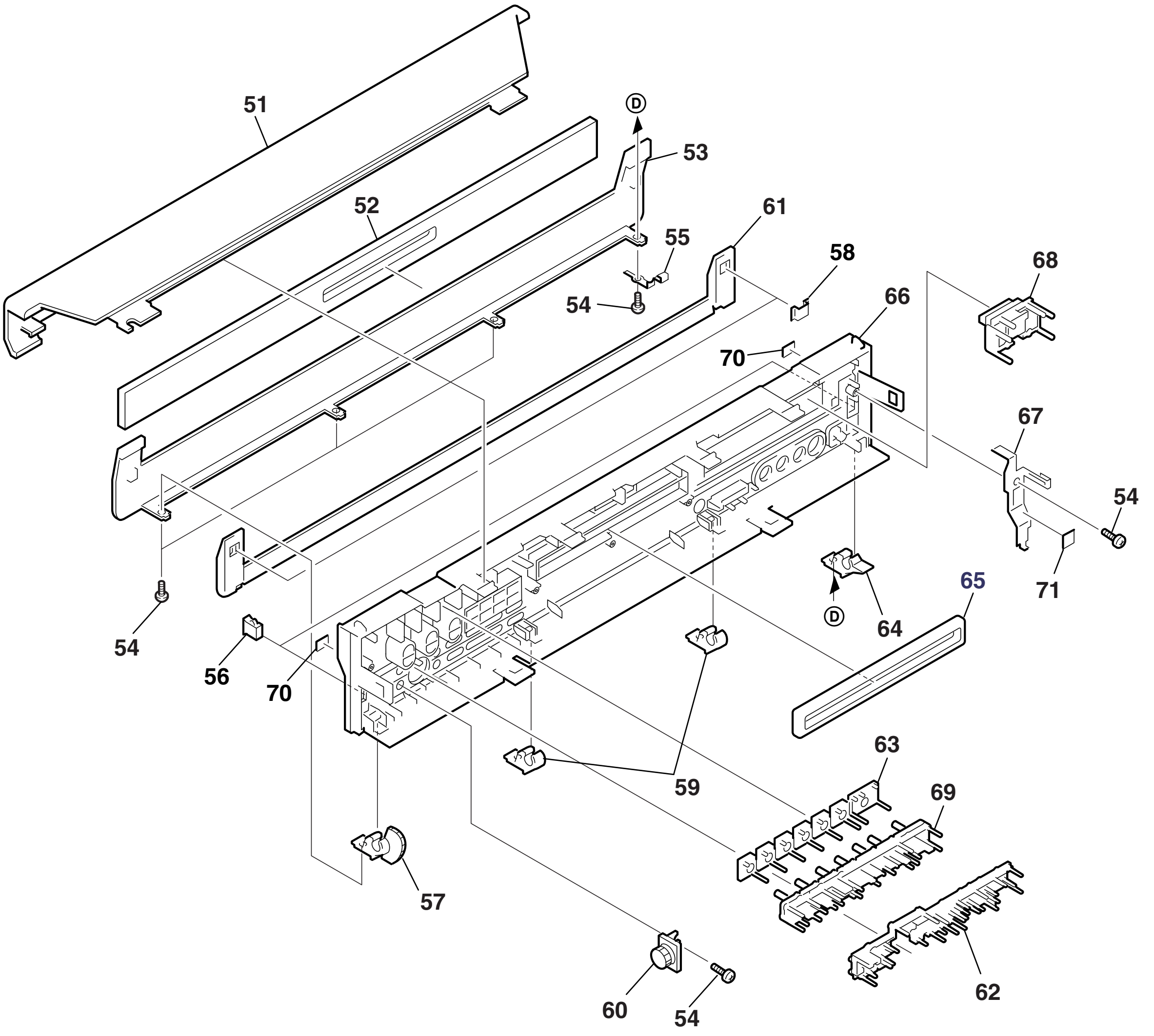
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

8-1-1. OVERALL


not supplied
4
Ⓐ
Ⓑ
Ⓓ
Ⓕ
Ⓖ
11
10
12
13
14
9
#1
Ⓗ
6
5
3
2
1
Ⓒ
7
8
Front panel section (See page 8-2)
Chassis section (See page 8-3)

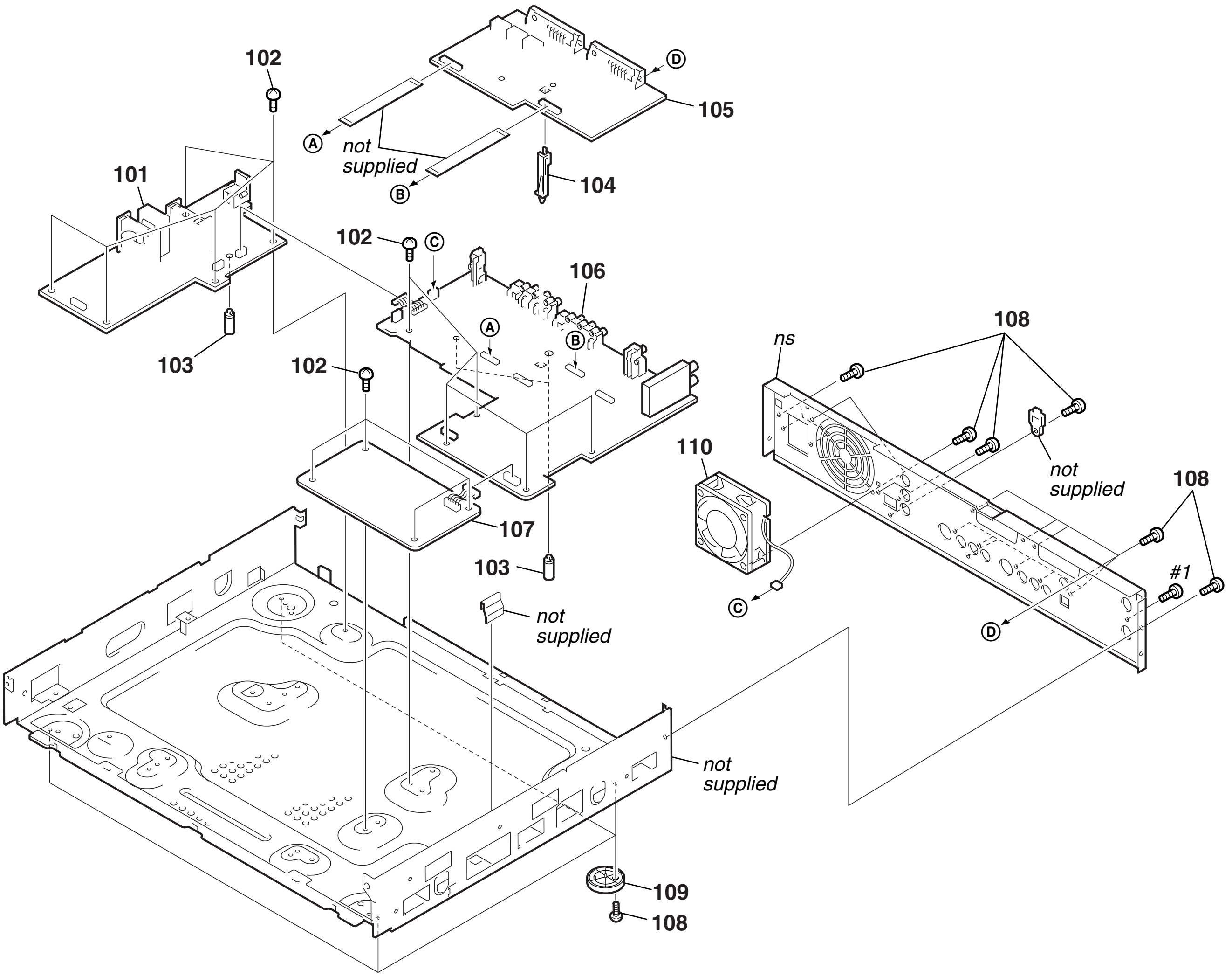
Ref. No.	Part No.	Description	Remarks
1	X-3953-198-1	COVER ASSY, TRAY	
2	3-081-148-01	EMBLEM (DUAL), DVD	
3	4-942-568-61	EMBLEM (NO.5), SONY	
4	3-970-608-11	SUMITITE (B3), +BV	
5	3-081-120-01	COVER, FL	
* 6	A-6061-470-A	FL-130 (E) BOARD, COMPLETE	
7	3-081-137-01	CURSOR	
* 8	A-6061-472-A	FR-195 (E) BOARD, COMPLETE	
9	8-457-501-00	DRIVE, DVD DW-U11A	
10	3-070-883-11	SCREW, TAPPING	
11	3-081-139-11	CASE, TOP	
* 12	3-632-494-01	RE-USE CLAMP	
* 13	A-6071-260-A	RD-045 (E) BOARD, COMPLETE (SVC)	(AEP)
* 13	A-6071-262-A	RD-045 (EC) BOARD, COMPLETE (SVC)	(UK)
* 14	A-6061-471-A	CN-177 (E) BOARD, COMPLETE	

8-1-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	3-081-146-02	PANEL, ALUMINUM		61	3-081-125-01	BASE, DOOR	
52	3-081-147-01	WINDOW, INDICATION		62	3-081-117-01	BUTTON, CONTROL	
53	3-081-126-02	DOOR, ALUMINUM (AEP)		63	3-081-118-01	INDICATOR (PLAY)	
53	3-081-126-32	DOOR, ALUMINUM (UK)		64	3-081-130-01	SHAFT (L)	
54	4-921-277-11	SCREW (B2.6X8), TAPPING, BIND		65	3-081-156-01	CUSHION, DRIVE	
55	3-081-128-01	PLATE, GROUND DOOR		66	3-080-678-01	PANEL, BASE	
56	3-081-127-01	RETAINER, MAGNET		67	3-081-119-02	SPRING, GROUND	
57	3-081-129-01	SHAFT (R)		68	X-3953-197-1	BUTTON ASSY, POWER	
58	3-736-779-71	MAGNET		69	X-3953-196-1	BUTTON ASSY, PLAY	
59	3-081-131-01	SHAFT (C)		70	3-081-428-01	CUSHION, DOOR	
60	3-047-468-01	DAMPER		71	3-083-631-01	DAMPER, SUUND	

8-1-3. CHASSIS SECTION


102
105
D
A
not supplied
101
B
104
102
C
106
108
ns
A
B
103
102
110
not supplied
108
107
103
#1
not supplied
C
D
not supplied
109
108

Ref. No.	Part No.	Description	Remarks
⚠101	1-468-747-11	POWER BLOCK	
102	3-970-608-11	SUMITITE (B3), +BV	
* 103	3-691-950-01	SPACER, P.C.BOARD	
* 104	3-669-571-01	SUPPORT, CHASSIS, SF	
* 105	A-6061-345-A	ER-020 (E) BOARD, COMPLETE	
* 106	A-6061-469-A	AV-071 (E) BOARD, COMPLETE (AEP)	
* 106	A-6061-498-A	AV-071 (EC) BOARD, COMPLETE (UK)	
* 107	A-6061-348-A	TX-001 (E) BOARD, COMPLETE	
108	3-970-608-51	SUMITITE (B3), +BV	
109	X-3953-201-1	FOOT ASSY	
110	1-787-006-11	FAN, D.C.	

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

8-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- COILS
  uH: μH
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
*	A-6061-469-A	AV-071 (E) BOARD, COMPLETE (AEP)			
		*******************************			
*	A-6061-468-A	AV-071 (EC) BOARD, COMPLETE (UK)			
		*******************************			
		< BUZZER >			
BZ601	1-544-886-11	BUZZER			
		< CAPACITOR >			
C101	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C102	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C103	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C104	1-126-964-11	ELECT	10uF	20.00%	50V
C108	1-126-947-11	ELECT	47uF	20.00%	16V
C109	1-126-947-11	ELECT	47uF	20.00%	16V
C110	1-126-947-11	ELECT	47uF	20.00%	16V
C111	1-126-947-11	ELECT	47uF	20.00%	16V
C115	1-126-947-11	ELECT	47uF	20.00%	25V
C116	1-126-947-11	ELECT	47uF	20.00%	16V
C117	1-126-947-11	ELECT	47uF	20.00%	16V
C207	1-126-947-11	ELECT	47uF	20.00%	16V
C208	1-128-200-11	ELECT	47uF	20.00%	63V
C209	1-126-947-11	ELECT	47uF	20.00%	16V
C210	1-126-947-11	ELECT	47uF	20.00%	16V
C211	1-126-947-11	ELECT	47uF	20.00%	16V
C212	1-126-963-11	ELECT	4.7uF	20.00%	50V
C217	1-126-947-11	ELECT	47uF	20.00%	16V
C218	1-126-963-11	ELECT	4.7uF	20.00%	50V
C220	1-128-200-11	ELECT	47uF	20.00%	63V
C221	1-126-947-11	ELECT	47uF	20.00%	16V
C222	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C223	1-126-964-11	ELECT	10uF	20.00%	50V
C224	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C226	1-126-947-11	ELECT	47uF	20.00%	16V
C227	1-126-961-11	ELECT	2.2uF	20.00%	50V
C228	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C235	1-126-947-11	ELECT	47uF	20.00%	16V
C236	1-126-964-11	ELECT	10uF	20.00%	50V
C244	1-136-850-11	MYLAR	0.1uF	5.00%	63V
C246	1-136-850-11	MYLAR	0.1uF	5.00%	63V
C301	1-126-947-11	ELECT	47uF	20.00%	25V
C302	1-126-924-11	ELECT	330uF	20.00%	6.3V
C304	1-126-066-11	ELECT	470uF	20%	63V
C305	1-126-066-11	ELECT	470uF	20%	63V
C308	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C310	1-128-200-11	ELECT	47uF	20.00%	63V
C311	1-136-850-11	MYLAR	0.1uF	5.00%	63V
C312	1-136-850-11	MYLAR	0.1uF	5.00%	63V
C313	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C314	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C315	1-119-839-11	ELECT	330uF	20%	63V
C316	1-128-200-11	ELECT	47uF	20.00%	63V
C317	1-136-850-11	MYLAR	0.1uF	5.00%	63V
C319	1-137-256-11	MYLAR	0.00015uF	5%	50V
C320	1-137-256-11	MYLAR	0.00015uF	5%	50V
C323	1-107-737-11	MYLAR	560PF	5.00%	50V
C324	1-107-737-11	MYLAR	560PF	5.00%	50V
C325	1-137-256-11	MYLAR	0.00015uF	5%	50V
C326	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C327	1-137-256-11	MYLAR	0.00015uF	5%	50V
C329	1-137-619-21	FILM	1200PF	5%	50V
C330	1-137-619-21	FILM	1200PF	5%	50V
C331	1-126-960-11	ELECT	1uF	20.00%	50V
C332	1-126-960-11	ELECT	1uF	20.00%	50V
C334	1-130-467-00	MYLAR	470PF	5%	50V
C335	1-130-467-00	MYLAR	470PF	5%	50V
C338	1-128-552-11	ELECT	47uF	20.00%	50V
C339	1-136-850-11	MYLAR	0.1uF	5.00%	63V
C340	1-128-552-11	ELECT	47uF	20.00%	50V
C342	1-136-850-11	MYLAR	0.1uF	5.00%	63V
C347	1-136-850-11	MYLAR	0.1uF	5.00%	63V
C348	1-136-850-11	MYLAR	0.1uF	5.00%	63V
C349	1-104-987-11	MYLAR	0.001uF	5.00%	50V
C350	1-104-987-11	MYLAR	0.001uF	5.00%	50V
C351	1-106-351-00	MYLAR	2200PF	5%	200V
C352	1-106-351-00	MYLAR	2200PF	5%	200V
C353	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C354	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C355	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C356	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C357	1-126-934-11	ELECT	220uF	20.00%	16V
C358	1-128-197-11	ELECT	10uF	20.00%	63V
C359	1-128-201-11	ELECT	100uF	20.00%	63V
C360	1-128-200-11	ELECT	47uF	20.00%	63V
C361	1-128-200-11	ELECT	47uF	20.00%	63V
C362	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C401	1-126-964-11	ELECT	10uF	20.00%	50V
C402	1-126-964-11	ELECT	10uF	20.00%	50V
C404	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V

Ref. No.	Part No.	Description			Remarks
C409	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C412	1-126-947-11	ELECT	47uF	20.00%	16V
C413	1-126-947-11	ELECT	47uF	20.00%	16V
C414	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C415	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C416	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C418	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C419	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C422	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C429	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C430	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C431	1-126-947-11	ELECT	47uF	20.00%	16V
C432	1-104-665-11	ELECT	100uF	20.00%	10V
C436	1-126-963-11	ELECT	4.7uF	20.00%	50V
C437	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C438	1-126-916-11	ELECT	1000uF	20.00%	6.3V
C439	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C440	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C441	1-126-947-11	ELECT	47uF	20.00%	16V
C442	1-126-947-11	ELECT	47uF	20.00%	16V
C443	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C444	1-126-963-11	ELECT	4.7uF	20.00%	50V
C445	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C446	1-126-947-11	ELECT	47uF	20.00%	16V
C447	1-115-339-11	CERAMIC CHIP	0.1uF	10.00%	50V
C448	1-126-947-11	ELECT	47uF	20.00%	35V
C449	1-162-924-11	CERAMIC CHIP	56PF	5.00%	50V
C450	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C451	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V
C452	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C454	1-162-924-11	CERAMIC CHIP	56PF	5.00%	50V
C455	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C457	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C458	1-126-964-11	ELECT	10uF	20.00%	50V
C459	1-107-927-11	ELECT	3.3uF	20.00%	100V
C460	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C461	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C464	1-126-964-11	ELECT	10uF	20.00%	50V
C465	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C467	1-126-947-11	ELECT	47uF	20.00%	16V
C468	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C469	1-162-925-11	CERAMIC CHIP	68PF	5.00%	50V
C603	1-126-947-11	ELECT	47uF	20.00%	16V
C604	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C605	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C607	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C608	1-126-935-11	ELECT	470uF	20.00%	6.3V
C610	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C611	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C612	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C613	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C614	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C615	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C616	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C618	1-126-916-11	ELECT	1000uF	20.00%	6.3V
C619	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C620	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C621	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C622	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C623	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V

Ref. No.	Part No.	Description			Remarks
C624	1-115-456-21	CAPACITOR	0.22F		5.5V
C626	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C627	1-126-935-11	ELECT	470uF	20.00%	6.3V
C628	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C631	1-126-934-11	ELECT	220uF	20.00%	16V
C632	1-163-024-00	CERAMIC CHIP	0.018uF	10.00%	50V
C633	1-163-024-00	CERAMIC CHIP	0.018uF	10.00%	50V
C634	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C635	1-126-965-91	ELECT	22uF	20.00%	50V
C636	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C638	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C642	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C643	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C644	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C701	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C702	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C704	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C705	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C707	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C709	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C710	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C714	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C715	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C716	1-126-947-11	ELECT	47uF	20.00%	16V
C717	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C720	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C723	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C724	1-126-947-11	ELECT	47uF	20.00%	16V
C725	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C726	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C727	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C728	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C729	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C735	1-126-947-11	ELECT	47uF	20.00%	16V
C736	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C737	1-126-947-11	ELECT	47uF	20.00%	16V
C738	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C739	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C740	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C741	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C743	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C745	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C746	1-126-947-11	ELECT	47uF	20.00%	16V
C748	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C753	1-126-947-11	ELECT	47uF	20.00%	16V
C754	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C763	1-126-961-11	ELECT	2.2uF	20.00%	50V
C764	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C765	1-164-172-11	CERAMIC CHIP	0.0056uF	10.00%	25V
C766	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C767	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C768	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C801	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C802	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C803	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C804	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C805	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C806	1-126-947-11	ELECT	47uF	20.00%	16V
C807	1-126-947-11	ELECT	47uF	20.00%	16V
C808	1-126-947-11	ELECT	47uF	20.00%	16V

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Ref. No.	Part No.	Description			Remarks
C811	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C812	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C814	1-126-947-11	ELECT	47uF	20.00%	16V
C815	1-126-947-11	ELECT	47uF	20.00%	16V
C816	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C817	1-126-947-11	ELECT	47uF	20.00%	16V
C818	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C819	1-126-935-11	ELECT	470uF	20.00%	6.3V
C821	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1001	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1002	1-126-964-11	ELECT	10uF	20.00%	50V
C1003	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1004	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1005	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1006	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C1007	1-164-677-11	CERAMIC CHIP	0.033uF	10.00%	16V
C1101	1-128-551-11	ELECT	22uF	20.00%	25V
C1103	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C1104	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C1105	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1106	1-126-964-11	ELECT	10uF	20.00%	50V
C1107	1-128-551-11	ELECT	22uF	20.00%	25V
C1108	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1109	1-126-960-11	ELECT	1uF	20.00%	50V
C1110	1-128-551-11	ELECT	22uF	20.00%	25V
C1111	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1112	1-126-964-11	ELECT	10uF	20.00%	50V
C1113	1-126-964-11	ELECT	10uF	20.00%	50V
C1114	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1116	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C1118	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1119	1-164-230-11	CERAMIC CHIP	220PF	5.00%	50V
C1120	1-126-964-11	ELECT	10uF	20.00%	50V
C1121	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
		< CONNECTOR >			
CN101	1-778-317-11	CONNECTOR, BOARD TO BOARD 13P			
CN102	1-794-509-11	PIN, CONNECTOR (PC BOARD) (3P)			
CN301	1-694-994-11	TERMINAL BOARD			
CN501	1-784-326-11	CONNECTOR, FFC/FPC 27P			
CN502	1-784-326-11	CONNECTOR, FFC/FPC 27P			
CN602	1-779-937-11	CONNECTOR, FFC/FPC 19P			
CN801	1-573-489-11	PIN, CONNECTOR (PC BOARD) 11P			
		< DIODE >			
D302	8-719-075-77	DIODE	EC10DA40-TE12		
D303	8-719-914-44	DIODE	DAP202K-T-146		
D304	8-719-914-44	DIODE	DAP202K-T-146		
D351	8-719-914-43	DIODE	DAN202K-T-146		
D408	8-719-988-61	DIODE	1SS355TE-17		
D411	8-719-058-24	DIODE	RB501V-40TE-17		
D602	8-719-075-77	DIODE	EC10DA40-TE12		
D603	8-719-075-77	DIODE	EC10DA40-TE12		
D604	8-719-988-61	DIODE	1SS355TE-17		
D605	8-719-988-61	DIODE	1SS355TE-17		
D606	8-719-988-61	DIODE	1SS355TE-17		
D607	8-719-988-61	DIODE	1SS355TE-17		
D608	8-719-988-61	DIODE	1SS355TE-17		
D609	8-719-083-85	DIODE	UDZS-TE17-22B		
D610	8-719-422-62	DIODE	MA8062-L-TX		

Ref. No.	Part No.	Description		Remarks
D705	8-719-988-61	DIODE	1SS355TE-17	
D706	8-719-988-61	DIODE	1SS355TE-17	
D707	8-719-988-61	DIODE	1SS355TE-17	
D709	8-719-988-61	DIODE	1SS355TE-17	
D803	8-719-071-15	DIODE	HZM6.8ZWA1TL	
D807	8-719-071-15	DIODE	HZM6.8ZWA1TL	
D808	8-719-071-15	DIODE	HZM6.8ZWA1TL	
D811	8-719-071-15	DIODE	HZM6.8ZWA1TL	
D812	8-719-071-15	DIODE	HZM6.8ZWA1TL	
D814	8-719-914-44	DIODE	DAP202K-T-146	
D1201	8-719-071-15	DIODE	HZM6.8ZWA1TL	
D1202	8-719-071-15	DIODE	HZM6.8ZWA1TL	
		< FERRITE BEAD >		
FB301	1-414-766-22	FERRITE	0uH	
FB302	1-414-766-22	FERRITE	0uH	
FB303	1-414-766-22	FERRITE	0uH	
FB304	1-414-766-22	FERRITE	0uH	
FB802	1-414-230-22	FERRITE	0uH	
		< FILTER >		
FL601	1-233-893-21	FILTER, CHIP EMI		
FL801	1-233-893-21	FILTER, CHIP EMI		
FL802	1-233-893-21	FILTER, CHIP EMI		
FL803	1-233-893-21	FILTER, CHIP EMI		
FL804	1-233-893-21	FILTER, CHIP EMI		
		< IC >		
IC101	8-759-521-89	IC	PQ20WZ5U	
IC102	6-703-758-01	IC	PQ050DZ01ZPH	
IC105	8-759-521-89	IC	PQ20WZ5U	
IC106	6-703-756-01	IC	PQ1L503M2SPQ	
IC201	6-703-503-01	IC	AK5365VQ	
IC301	6-701-565-01	IC	CXD9627A-E2	
IC302	8-759-052-52	IC	NJM78M05DL1A-TE1	
IC303	8-759-684-22	IC	BA15532F-E2	
IC304	8-759-684-22	IC	BA15532F-E2	
IC402	8-759-712-65	IC	PQ070XZ01ZP	
IC406	6-703-750-01	IC	TK11850L-1TL	
IC407	6-702-714-01	IC	MSP3417G-QG-B8V3	
IC603	6-702-767-01	IC	BD4745G-TR	
IC604	6-703-873-01	IC	PST3241NL	
IC605	6-704-473-01	IC	uPD703033BYGF-M29-3BA-A	
IC701	6-703-155-01	IC	LA73030-TLM-E	
IC801	8-759-667-17	IC	L79M05TLL-SONY-TL	
IC802	6-701-820-01	IC	LA73053-TLM-E	
IC1001	8-759-484-61	IC	SDA5650X-GEG	
IC1101	8-759-349-01	IC	MC68HC68VBIFB	
		< JUMPER RESISTOR >		
JR001	1-216-295-91	SHORT CHIP	0	
JR002	1-216-296-11	SHORT CHIP	0	
JR003	1-216-296-11	SHORT CHIP	0	
JR004	1-216-296-11	SHORT CHIP	0	
JR005	1-216-295-91	SHORT CHIP	0	
JR006	1-216-295-91	SHORT CHIP	0	
JR007	1-216-296-11	SHORT CHIP	0	
JR008	1-216-296-11	SHORT CHIP	0	
JR009	1-216-296-11	SHORT CHIP	0	
JR010	1-216-296-11	SHORT CHIP	0	

Ref. No.	Part No.	Description		Remarks
JR011	1-216-296-11	SHORT CHIP	0	
JR012	1-216-295-91	SHORT CHIP	0	
JR013	1-216-296-11	SHORT CHIP	0	
JR014	1-216-295-91	SHORT CHIP	0	
JR015	1-216-296-11	SHORT CHIP	0	
		< COIL >		
L101	1-469-967-21	INDUCTOR	10uH	
L401	1-469-967-21	INDUCTOR	10uH	
L402	1-469-967-21	INDUCTOR	10uH	
L404	1-469-967-21	INDUCTOR	10uH	
L405	1-414-187-11	INDUCTOR	47uH	
L406	1-414-187-11	INDUCTOR	47uH	
L407	1-414-187-11	INDUCTOR	47uH	
L408	1-469-967-21	INDUCTOR	10uH	
L409	1-414-187-11	INDUCTOR	47uH	
L411	1-414-187-11	INDUCTOR	47uH	
L412	1-410-431-11	INDUCTOR	100uH	
L601	1-412-755-11	INDUCTOR	47uH	
L701	1-469-967-21	INDUCTOR	10uH	
L702	1-469-967-21	INDUCTOR	10uH	
L703	1-469-967-21	INDUCTOR	10uH	
L801	1-419-387-21	INDUCTOR	100uH	
L802	1-419-387-21	INDUCTOR	100uH	
L803	1-400-145-21	INDUCTOR	47uH	
L1001	1-400-145-21	INDUCTOR	47uH	
L1101	1-469-967-21	INDUCTOR	10uH	
L1102	1-469-967-21	INDUCTOR	10uH	
L1103	1-469-967-21	INDUCTOR	10uH	
L1104	1-400-145-21	INDUCTOR	47uH	
		< IC LINK >		
PS101	1-576-509-21	IC LINK	1A	50V
PS102	1-576-508-21	IC LINK	0.7A	50V
PS401	1-576-259-11	IC LINK	0.7A	50V
		< TRANSISTOR >		
Q103	8-729-421-19	TRANSISTOR	UN2213-TX	
Q107	8-729-424-08	TRANSISTOR	UN2111-TX	
Q108	8-729-048-28	TRANSISTOR	2SD1766-T100-QR	
Q301	8-729-045-17	TRANSISTOR	2SB1561T100Q	
Q302	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q303	8-729-045-17	TRANSISTOR	2SB1561T100Q	
Q304	8-729-421-19	TRANSISTOR	UN2213-TX	
Q305	8-729-421-19	TRANSISTOR	UN2213-TX	
Q306	8-729-027-53	TRANSISTOR	DTC124TKA-T146	
Q307	8-729-027-53	TRANSISTOR	DTC124TKA-T146	
Q308	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX	
Q309	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX	
Q310	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO	
Q311	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO	
Q312	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO	
Q313	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO	
Q314	8-729-424-18	TRANSISTOR	UN2113-TX	
Q315	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	
Q316	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	
Q317	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	
Q404	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q406	8-729-421-19	TRANSISTOR	UN2213-TX	
Q408	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q409	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q410	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX	
Q411	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q412	8-729-421-22	TRANSISTOR	UN2211-TX	
Q413	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX	
Q414	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX	
Q415	8-729-421-22	TRANSISTOR	UN2211-TX	
Q416	8-729-045-17	TRANSISTOR	2SB1561T100Q	
Q417	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q419	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX	
Q420	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q601	8-729-421-19	TRANSISTOR	UN2213-TX	
Q602	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	
Q603	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	
Q604	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	
Q605	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	
Q606	8-729-421-22	TRANSISTOR	UN2211-TX	
Q607	8-729-424-08	TRANSISTOR	UN2111-TX	
Q608	8-729-921-73	TRANSISTOR	2SD1781K-T146-QR	
Q609	8-729-056-46	TRANSISTOR	2SC5053T100Q	
Q610	8-729-056-46	TRANSISTOR	2SC5053T100Q	
Q611	8-729-026-49	TRANSISTOR	2SA1037AK-T146-QR	
Q705	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX	
Q706	8-729-424-59	TRANSISTOR	UN2212-TX	
Q708	8-729-045-17	TRANSISTOR	2SB1561T100Q	
Q709	8-729-120-28	TRANSISTOR	2SC2412K-T-146-QR	
Q710	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	
Q711	8-729-026-49	TRANSISTOR	2SA1037AK-T146-QR	
Q712	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	
Q713	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	
Q715	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	
Q716	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q801	8-729-424-08	TRANSISTOR	UN2111-TX	
Q802	8-729-048-28	TRANSISTOR	2SD1766-T100-QR	
Q803	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q804	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q805	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q806	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q807	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q808	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q809	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q810	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q811	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q812	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q813	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q814	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q815	8-729-421-19	TRANSISTOR	UN2213-TX	
Q816	8-729-424-08	TRANSISTOR	UN2111-TX	
Q1001	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX	
Q1101	8-729-402-81	TRANSISTOR	XN4501-TW	
Q1102	8-729-402-81	TRANSISTOR	XN4501-TW	
Q1103	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	
Q1104	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX	
Q1105	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX	

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Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R104	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R105	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R106	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R107	1-216-295-91	SHORT CHIP	0		
R108	1-216-864-11	METAL CHIP	0	5%	1/16W
R111	1-216-864-11	METAL CHIP	0	5%	1/16W
R112	1-216-210-00	RES-CHIP	3.3K	5%	1/8W
R113	1-216-833-11	METAL CHIP	10K	5%	1/16W
R114	1-216-296-11	SHORT CHIP	0		
R115	1-216-296-11	SHORT CHIP	0		
R116	1-216-295-91	SHORT CHIP	0		
R117	1-216-295-91	SHORT CHIP	0		
R118	1-216-295-91	SHORT CHIP	0		
R120	1-216-296-11	SHORT CHIP	0		
R121	1-216-295-91	SHORT CHIP	0		
R122	1-216-295-91	SHORT CHIP	0		
R123	1-208-818-11	METAL CHIP	33K	0.5%	1/10W
R124	1-208-808-11	METAL CHIP	12K	0.5%	1/10W
R125	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W
R126	1-216-833-11	METAL CHIP	10K	5%	1/16W
R127	1-216-295-91	SHORT CHIP	0		
R128	1-208-810-11	METAL CHIP	15K	0.5%	1/10W
R129	1-216-296-11	SHORT CHIP	0		
R130	1-216-296-11	SHORT CHIP	0		
R131	1-216-864-11	METAL CHIP	0	5%	1/16W
R132	1-216-210-00	RES-CHIP	3.3K	5%	1/8W
R135	1-216-296-11	SHORT CHIP	0		
R137	1-216-296-11	SHORT CHIP	0		
R213	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R214	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R215	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R216	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R217	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R218	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R219	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R220	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R221	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R222	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R224	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R227	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R248	1-216-833-11	METAL CHIP	10K	5%	1/16W
R250	1-216-833-11	METAL CHIP	10K	5%	1/16W
R253	1-216-833-11	METAL CHIP	10K	5%	1/16W
R255	1-216-809-11	METAL CHIP	100	5%	1/16W
R256	1-216-801-11	METAL CHIP	22	5%	1/16W
R257	1-216-797-11	METAL CHIP	10	5%	1/16W
R258	1-216-801-11	METAL CHIP	22	5%	1/16W
R259	1-216-864-11	METAL CHIP	0	5%	1/16W
R261	1-216-864-11	METAL CHIP	0	5%	1/16W
R275	1-216-864-11	METAL CHIP	0	5%	1/16W
R276	1-216-864-11	METAL CHIP	0	5%	1/16W
R277	1-216-809-11	METAL CHIP	100	5%	1/16W
R278	1-216-837-11	METAL CHIP	22K	5%	1/16W
R279	1-216-837-11	METAL CHIP	22K	5%	1/16W
R280	1-216-837-11	METAL CHIP	22K	5%	1/16W
R301	1-216-849-11	METAL CHIP	220K	5%	1/16W
R302	1-216-817-11	METAL CHIP	470	5%	1/16W
R303	1-216-833-11	METAL CHIP	10K	5%	1/16W
R307	1-216-833-11	METAL CHIP	10K	5%	1/16W
R308	1-216-845-11	METAL CHIP	100K	5%	1/16W
R309	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R310	1-216-801-11	METAL CHIP	22	5%	1/16W
R311	1-216-809-11	METAL CHIP	100	5%	1/16W
R313	1-216-809-11	METAL CHIP	100	5%	1/16W
R318	1-216-864-11	METAL CHIP	0	5%	1/16W
R319	1-216-864-11	METAL CHIP	0	5%	1/16W
R320	1-216-049-11	RES-CHIP	1K	5%	1/10W
R322	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R323	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R324	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R325	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R326	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R327	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R328	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R329	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R330	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R331	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R332	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R333	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R334	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R335	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R336	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R337	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R338	1-216-833-11	METAL CHIP	10K	5%	1/16W
R339	1-216-833-11	METAL CHIP	10K	5%	1/16W
R340	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R341	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R343	1-216-833-11	METAL CHIP	10K	5%	1/16W
R344	1-216-841-11	METAL CHIP	47K	5%	1/16W
R345	1-216-833-11	METAL CHIP	10K	5%	1/16W
R346	1-216-841-11	METAL CHIP	47K	5%	1/16W
R350	1-216-833-11	METAL CHIP	10K	5%	1/16W
R351	1-216-833-11	METAL CHIP	10K	5%	1/16W
R352	1-216-817-11	METAL CHIP	470	5%	1/16W
R353	1-216-817-11	METAL CHIP	470	5%	1/16W
R354	1-216-841-11	METAL CHIP	47K	5%	1/16W
R355	1-216-841-11	METAL CHIP	47K	5%	1/16W
R356	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R358	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R359	1-216-845-11	METAL CHIP	100K	5%	1/16W
R360	1-216-845-11	METAL CHIP	100K	5%	1/16W
R361	1-216-845-11	METAL CHIP	100K	5%	1/16W
R362	1-216-817-11	METAL CHIP	470	5%	1/16W
R364	1-216-817-11	METAL CHIP	470	5%	1/16W
R366	1-216-817-11	METAL CHIP	470	5%	1/16W
R370	1-216-821-11	METAL CHIP	1K	5%	1/16W
R371	1-216-821-11	METAL CHIP	1K	5%	1/16W
R372	1-216-837-11	METAL CHIP	22K	5%	1/16W
R373	1-216-833-11	METAL CHIP	10K	5%	1/16W
R374	1-216-821-11	METAL CHIP	1K	5%	1/16W
R375	1-216-809-11	METAL CHIP	100	5%	1/16W
R377	1-216-807-11	METAL CHIP	68	5%	1/16W
R378	1-216-807-11	METAL CHIP	68	5%	1/16W
R382	1-216-041-00	METAL CHIP	470	5%	1/10W
R401	1-216-049-11	RES-CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R402	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R403	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R405	1-216-809-11	METAL CHIP	100	5%	1/16W
R408	1-216-845-11	METAL CHIP	100K	5%	1/16W
R409	1-208-818-11	METAL CHIP	33K	0.5%	1/10W
R410	1-216-838-11	METAL CHIP	27K	5%	1/16W
R411	1-216-845-11	METAL CHIP	100K	5%	1/16W
R412	1-216-845-11	METAL CHIP	100K	5%	1/16W
R413	1-216-841-11	METAL CHIP	47K	5%	1/16W
R415	1-216-864-11	METAL CHIP	0	5%	1/16W
R416	1-216-296-11	SHORT CHIP	0		
R418	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R419	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R420	1-216-821-11	METAL CHIP	1K	5%	1/16W
R421	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R422	1-216-821-11	METAL CHIP	1K	5%	1/16W
R423	1-216-857-11	METAL CHIP	1M	5%	1/16W
R424	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R425	1-216-809-11	METAL CHIP	100	5%	1/16W
R426	1-216-809-11	METAL CHIP	100	5%	1/16W
R427	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R428	1-216-821-11	METAL CHIP	1K	5%	1/16W
R429	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R430	1-216-820-11	METAL CHIP	820	5%	1/16W
R431	1-216-821-11	METAL CHIP	1K	5%	1/16W
R432	1-216-809-11	METAL CHIP	100	5%	1/16W
R437	1-216-864-11	METAL CHIP	0	5%	1/16W
R438	1-216-833-11	METAL CHIP	10K	5%	1/16W
R439	1-216-821-11	METAL CHIP	1K	5%	1/16W
R440	1-218-446-11	METAL CHIP	1	5%	1/10W
R441	1-216-857-11	METAL CHIP	1M	5%	1/16W
R442	1-216-819-11	METAL CHIP	680	5%	1/16W
R443	1-216-821-11	METAL CHIP	1K	5%	1/16W
R445	1-216-809-11	METAL CHIP	100	5%	1/16W
R446	1-216-809-11	METAL CHIP	100	5%	1/16W
R450	1-216-817-11	METAL CHIP	470	5%	1/16W
R451	1-216-817-11	METAL CHIP	470	5%	1/16W
R452	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R453	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R454	1-216-295-91	SHORT CHIP	0		
R457	1-216-809-11	METAL CHIP	100	5%	1/16W
R458	1-216-809-11	METAL CHIP	100	5%	1/16W
R459	1-216-837-11	METAL CHIP	22K	5%	1/16W
R462	1-216-837-11	METAL CHIP	22K	5%	1/16W
R471	1-216-821-11	METAL CHIP	1K	5%	1/16W
R472	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R473	1-216-821-11	METAL CHIP	1K	5%	1/16W
R481	1-216-809-11	METAL CHIP	100	5%	1/16W
R483	1-208-842-11	METAL CHIP	330K	0.5%	1/10W
R484	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R485	1-216-025-11	RES-CHIP	100	5%	1/10W
R486	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R487	1-216-864-11	METAL CHIP	0	5%	1/16W
R488	1-216-821-11	METAL CHIP	1K	5%	1/16W
R504	1-216-296-11	SHORT CHIP	0		
R505	1-216-296-11	SHORT CHIP	0		
R506	1-216-296-11	SHORT CHIP	0		
R509	1-216-864-11	METAL CHIP	0	5%	1/16W
R603	1-216-296-11	SHORT CHIP	0		
R604	1-208-774-11	METAL CHIP	470	0.5%	1/10W

Ref. No.	Part No.	Description			Remarks
R605	1-208-774-11	METAL CHIP	470	0.5%	1/10W
R606	1-216-864-11	METAL CHIP	0	5%	1/16W
R608	1-216-296-11	SHORT CHIP	0		
R609	1-216-296-11	SHORT CHIP	0		
R610	1-216-833-11	METAL CHIP	10K	5%	1/16W
R611	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R612	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R613	1-216-833-11	METAL CHIP	10K	5%	1/16W
R614	1-216-845-11	METAL CHIP	100K	5%	1/16W
R615	1-216-809-11	METAL CHIP	100	5%	1/16W
R616	1-216-809-11	METAL CHIP	100	5%	1/16W
R617	1-216-809-11	METAL CHIP	100	5%	1/16W
R618	1-216-809-11	METAL CHIP	100	5%	1/16W
R619	1-216-809-11	METAL CHIP	100	5%	1/16W
R620	1-216-809-11	METAL CHIP	100	5%	1/16W
R621	1-216-809-11	METAL CHIP	100	5%	1/16W
R622	1-216-809-11	METAL CHIP	100	5%	1/16W
R623	1-216-809-11	METAL CHIP	100	5%	1/16W
R624	1-216-809-11	METAL CHIP	100	5%	1/16W
R625	1-216-864-11	METAL CHIP	0	5%	1/16W
R626	1-216-809-11	METAL CHIP	100	5%	1/16W
R627	1-216-809-11	METAL CHIP	100	5%	1/16W
R628	1-216-809-11	METAL CHIP	100	5%	1/16W
R629	1-216-817-11	METAL CHIP	470	5%	1/16W
R630	1-216-809-11	METAL CHIP	100	5%	1/16W
R631	1-216-809-11	METAL CHIP	100	5%	1/16W
R632	1-216-853-11	METAL CHIP	470K	5%	1/16W
R633	1-216-849-11	METAL CHIP	220K	5%	1/16W
R634	1-216-864-11	METAL CHIP	0	5%	1/16W
R635	1-216-809-11	METAL CHIP	100	5%	1/16W
R636	1-216-809-11	METAL CHIP	100	5%	1/16W
R637	1-216-817-11	METAL CHIP	470	5%	1/16W
R638	1-216-833-11	METAL CHIP	10K	5%	1/16W
R639	1-216-833-11	METAL CHIP	10K	5%	1/16W
R640	1-216-864-11	METAL CHIP	0	5%	1/16W
R641	1-216-864-11	METAL CHIP	0	5%	1/16W
R642	1-216-833-11	METAL CHIP	10K	5%	1/16W
R643	1-216-833-11	METAL CHIP	10K	5%	1/16W
R644	1-216-833-11	METAL CHIP	10K	5%	1/16W
R645	1-216-864-11	METAL CHIP	0	5%	1/16W
R646	1-216-210-00	RES-CHIP	3.3K	5%	1/8W
R647	1-216-864-11	METAL CHIP	0	5%	1/16W
R648	1-216-833-11	METAL CHIP	10K	5%	1/16W
R649	1-216-833-11	METAL CHIP	10K	5%	1/16W
R650	1-216-809-11	METAL CHIP	100	5%	1/16W
R652	1-216-809-11	METAL CHIP	100	5%	1/16W
R654	1-216-809-11	METAL CHIP	100	5%	1/16W
R655	1-216-833-11	METAL CHIP	10K	5%	1/16W
R656	1-216-833-11	METAL CHIP	10K	5%	1/16W
R657	1-216-809-11	METAL CHIP	100	5%	1/16W
R658	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R659	1-216-809-11	METAL CHIP	100	5%	1/16W
R661	1-216-833-11	METAL CHIP	10K	5%	1/16W
R663	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R665	1-216-833-11	METAL CHIP	10K	5%	1/16W
R667	1-216-847-11	METAL CHIP	150K	5%	1/16W
R668	1-216-809-11	METAL CHIP	100	5%	1/16W
R669	1-216-809-11	METAL CHIP	100	5%	1/16W
R670	1-216-837-11	METAL CHIP	22K	5%	1/16W
R671	1-216-833-11	METAL CHIP	10K	5%	1/16W

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Ref. No.	Part No.	Description			Remarks
R672	1-216-210-00	RES-CHIP	3.3K	5%	1/8W
R673	1-216-809-11	METAL CHIP	100	5%	1/16W
R674	1-216-809-11	METAL CHIP	100	5%	1/16W
R675	1-216-833-11	METAL CHIP	10K	5%	1/16W
R676	1-216-809-11	METAL CHIP	100	5%	1/16W
R677	1-216-809-11	METAL CHIP	100	5%	1/16W
R678	1-216-809-11	METAL CHIP	100	5%	1/16W
R679	1-216-809-11	METAL CHIP	100	5%	1/16W
R680	1-216-809-11	METAL CHIP	100	5%	1/16W
R681	1-216-809-11	METAL CHIP	100	5%	1/16W
R682	1-216-809-11	METAL CHIP	100	5%	1/16W
R683	1-216-809-11	METAL CHIP	100	5%	1/16W
R684	1-216-841-11	METAL CHIP	47K	5%	1/16W
R686	1-216-839-11	METAL CHIP	33K	5%	1/16W
R687	1-216-833-11	METAL CHIP	10K	5%	1/16W
R688	1-216-833-11	METAL CHIP	10K	5%	1/16W
R689	1-216-296-11	SHORT CHIP	0		
R691	1-216-833-11	METAL CHIP	10K	5%	1/16W
R694	1-216-833-11	METAL CHIP	10K	5%	1/16W
R695	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R697	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R698	1-216-821-11	METAL CHIP	1K	5%	1/16W
R699	1-216-208-00	RES-CHIP	2.7K	5%	1/8W
R700	1-216-838-11	METAL CHIP	27K	5%	1/16W
R702	1-216-864-11	METAL CHIP	0	5%	1/16W
R712	1-216-864-11	METAL CHIP	0	5%	1/16W
R715	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R716	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R717	1-216-833-11	METAL CHIP	10K	5%	1/16W
R718	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R719	1-216-864-11	METAL CHIP	0	5%	1/16W
R720	1-216-815-11	METAL CHIP	330	5%	1/16W
R721	1-216-864-11	METAL CHIP	0	5%	1/16W
R723	1-216-821-11	METAL CHIP	1K	5%	1/16W
R724	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R725	1-216-864-11	METAL CHIP	0	5%	1/16W
R726	1-216-864-11	METAL CHIP	0	5%	1/16W
R727	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R728	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R729	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R730	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R731	1-216-817-11	METAL CHIP	470	5%	1/16W
R732	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R733	1-216-857-11	METAL CHIP	1M	5%	1/16W
R734	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R735	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R742	1-216-821-11	METAL CHIP	1K	5%	1/16W
R743	1-216-839-11	METAL CHIP	33K	5%	1/16W
R744	1-216-833-11	METAL CHIP	10K	5%	1/16W
R745	1-216-819-11	METAL CHIP	680	5%	1/16W
R746	1-216-813-11	METAL CHIP	220	5%	1/16W
R747	1-216-813-11	METAL CHIP	220	5%	1/16W
R748	1-216-857-11	METAL CHIP	1M	5%	1/16W
R749	1-218-289-11	METAL CHIP	510	5%	1/10W
R751	1-218-850-11	METAL CHIP	1.3K	5%	1/10W
R752	1-216-864-11	METAL CHIP	0	5%	1/16W
R753	1-216-864-11	METAL CHIP	0	5%	1/16W
R755	1-216-296-11	SHORT CHIP	0		
R756	1-218-289-11	METAL CHIP	510	5%	1/10W
R764	1-216-821-11	METAL CHIP	1K	5%	1/16W
R765	1-216-864-11	METAL CHIP	0	5%	1/16W
R766	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R767	1-216-864-11	METAL CHIP	0	5%	1/16W
R801	1-216-833-11	METAL CHIP	10K	5%	1/16W
R802	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R803	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R804	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R805	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R806	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R807	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R808	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R809	1-216-801-11	METAL CHIP	22	5%	1/16W
R810	1-216-801-11	METAL CHIP	22	5%	1/16W
R811	1-216-801-11	METAL CHIP	22	5%	1/16W
R812	1-216-801-11	METAL CHIP	22	5%	1/16W
R813	1-216-801-11	METAL CHIP	22	5%	1/16W
R814	1-216-801-11	METAL CHIP	22	5%	1/16W
R815	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R816	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R817	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R818	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R819	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R820	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R821	1-216-801-11	METAL CHIP	22	5%	1/16W
R822	1-216-801-11	METAL CHIP	22	5%	1/16W
R823	1-216-801-11	METAL CHIP	22	5%	1/16W
R824	1-216-801-11	METAL CHIP	22	5%	1/16W
R825	1-216-801-11	METAL CHIP	22	5%	1/16W
R826	1-216-801-11	METAL CHIP	22	5%	1/16W
R827	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R834	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R841	1-216-833-11	METAL CHIP	10K	5%	1/16W
R843	1-216-807-11	METAL CHIP	68	5%	1/16W
R844	1-216-807-11	METAL CHIP	68	5%	1/16W
R846	1-216-807-11	METAL CHIP	68	5%	1/16W
R847	1-216-807-11	METAL CHIP	68	5%	1/16W
R848	1-216-807-11	METAL CHIP	68	5%	1/16W
R850	1-216-807-11	METAL CHIP	68	5%	1/16W
R866	1-218-285-11	METAL CHIP	75	5%	1/10W
R867	1-218-285-11	METAL CHIP	75	5%	1/10W
R869	1-218-285-11	METAL CHIP	75	5%	1/10W
R898	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1003	1-216-864-11	METAL CHIP	0	5%	1/16W
R1004	1-216-864-11	METAL CHIP	0	5%	1/16W
R1005	1-216-809-11	METAL CHIP	100	5%	1/16W
R1006	1-216-838-11	METAL CHIP	27K	5%	1/16W
R1007	1-216-836-11	METAL CHIP	18K	5%	1/16W
R1008	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1009	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1010	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1011	1-218-867-11	METAL CHIP	6.8K	5%	1/10W
R1012	1-218-867-11	METAL CHIP	6.8K	5%	1/10W
R1013	1-216-858-11	METAL CHIP	1.2M	5%	1/10W
R1014	1-216-858-11	METAL CHIP	1.2M	5%	1/10W
R1015	1-216-855-11	METAL CHIP	680K	5%	1/16W
R1101	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1102	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1103	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1104	1-216-853-11	METAL CHIP	470K	5%	1/16W
R1105	1-216-813-11	METAL CHIP	220	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R1106	1-216-849-11	METAL CHIP	220K	5%	1/16W
R1107	1-216-809-11	METAL CHIP	100	5%	1/16W
R1108	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1109	1-216-839-11	METAL CHIP	33K	5%	1/16W
R1110	1-216-817-11	METAL CHIP	470	5%	1/16W
R1111	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1112	1-216-816-11	METAL CHIP	390	5%	1/16W
R1113	1-216-817-11	METAL CHIP	470	5%	1/16W
R1114	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1115	1-216-836-11	METAL CHIP	18K	5%	1/16W
R1116	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1117	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1118	1-216-815-11	METAL CHIP	330	5%	1/16W
R1119	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1120	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1121	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1122	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1123	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1124	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1125	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1126	1-216-864-11	METAL CHIP	0	5%	1/16W
R1127	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1128	1-216-864-11	METAL CHIP	0	5%	1/16W
R1129	1-216-864-11	METAL CHIP	0	5%	1/16W
R1130	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1204	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1207	1-216-809-11	METAL CHIP	100	5%	1/16W
R1208	1-216-809-11	METAL CHIP	100	5%	1/16W
R1209	1-216-809-11	METAL CHIP	100	5%	1/16W
R1213	1-216-809-11	METAL CHIP	100	5%	1/16W
R1217	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2602	1-216-853-11	METAL CHIP	470K	5%	1/16W
		< TRANSFORMER >			
T601	1-439-651-11	TRANSFORMER, DC-DC CONVERTER			
		< TUNER >			
TU401	8-598-605-01	TUNER, FSS BTF-DF401			
		< VIBRATOR >			
X401	1-781-041-11	VIBRATOR, CRYSTAL			
X601	1-781-913-11	VIBRATOR, CRYSTAL			
X602	1-795-721-21	VIBRATOR, CERAMIC			

Ref. No.	Part No.	Description			Remarks
*	A-6061-471-A	CN-177 (E) BOARD, COMPLETE **************************			
		< CONNECTOR >			
CN1801	1-817-736-11	PIN, CONNECTOR 40P			

Ref. No.	Part No.	Description			Remarks
*	A-6061-345-A	ER-020 (E) BOARD, COMPLETE **************************			
		< CAPACITOR >			
C1701	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1702	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1703	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1704	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1705	1-126-947-11	ELECT	47uF	20.00%	16V
C1706	1-126-947-11	ELECT	47uF	20.00%	16V
C1707	1-126-947-11	ELECT	47uF	20.00%	16V
C1712	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1713	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1714	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1715	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1716	1-126-947-11	ELECT	47uF	20.00%	16V
C1717	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1718	1-126-964-11	ELECT	10uF	20.00%	50V
C1719	1-126-964-11	ELECT	10uF	20.00%	50V
C1720	1-126-964-11	ELECT	10uF	20.00%	50V
C1722	1-126-947-11	ELECT	47uF	20.00%	16V
C1724	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1726	1-126-935-11	ELECT	470uF	20.00%	6.3V
C1727	1-126-947-11	ELECT	47uF	20.00%	16V
C1728	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1729	1-126-947-11	ELECT	47uF	20.00%	16V
C1732	1-126-960-11	ELECT	1uF	20.00%	50V
C1733	1-126-960-11	ELECT	1uF	20.00%	50V
C1734	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1737	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1740	1-126-935-11	ELECT	470uF	20.00%	6.3V
C1741	1-126-964-11	ELECT	10uF	20.00%	50V
C1742	1-126-964-11	ELECT	10uF	20.00%	50V
C1743	1-126-964-11	ELECT	10uF	20.00%	50V
C1744	1-126-964-11	ELECT	10uF	20.00%	50V
C1745	1-126-964-11	ELECT	10uF	20.00%	50V
C1746	1-126-964-11	ELECT	10uF	20.00%	50V
C1747	1-126-960-11	ELECT	1uF	20.00%	50V
C1748	1-126-960-11	ELECT	1uF	20.00%	50V
C1749	1-126-960-11	ELECT	1uF	20.00%	50V
C1750	1-126-960-11	ELECT	1uF	20.00%	50V
C1751	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1752	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1753	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1754	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1755	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1760	1-126-935-11	ELECT	470uF	20.00%	6.3V
C1761	1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C1762	1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C1763	1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C1764	1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C1765	1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C1766	1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C1767	1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C1768	1-164-315-11	CERAMIC CHIP	470PF	5.00%	50V
C1769	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1770	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1771	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1772	1-162-927-11	CERAMIC CHIP	100PF	5%	50V

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Ref. No.	Part No.	Description	Remarks
C1773	1-126-947-11	ELECT 47uF 20.00%	16V
C1774	1-126-947-11	ELECT 47uF 20.00%	16V
C1775	1-126-947-11	ELECT 47uF 20.00%	16V
C1776	1-164-217-11	CERAMIC CHIP 150PF 5.00%	50V
C1777	1-107-826-11	CERAMIC CHIP 0.1uF 10.00%	16V
C1779	1-126-947-11	ELECT 47uF 20.00%	16V
C1780	1-126-947-11	ELECT 47uF 20.00%	16V
C1781	1-126-947-11	ELECT 47uF 20.00%	16V
C1782	1-107-826-11	CERAMIC CHIP 0.1uF 10.00%	16V
C1783	1-126-947-11	ELECT 47uF 20.00%	16V
C1784	1-126-947-11	ELECT 47uF 20.00%	16V
C1785	1-127-715-91	CERAMIC CHIP 0.22uF 10%	16V
C1787	1-126-947-11	ELECT 47uF 20.00%	16V
C1788	1-127-715-91	CERAMIC CHIP 0.22uF 10%	16V
		< CONNECTOR >	
CN1703	1-816-044-11	CONNECTOR, SQUARE TYPE 21P	
CN1704	1-816-044-11	CONNECTOR, SQUARE TYPE 21P	
		< DIODE >	
D1701	8-719-914-43	DIODE DAN202K-T-146	
D1702	8-719-988-61	DIODE 1SS355TE-17	
D1703	8-719-914-44	DIODE DAP202K-T-146	
D1704	8-719-069-56	DIODE UDZSTE-176.2B	
D1705	8-719-914-43	DIODE DAN202K-T-146	
D1706	8-719-988-61	DIODE 1SS355TE-17	
D1707	8-719-988-61	DIODE 1SS355TE-17	
D1708	8-719-988-61	DIODE 1SS355TE-17	
D1709	8-719-988-61	DIODE 1SS355TE-17	
D1710	8-719-988-61	DIODE 1SS355TE-17	
D1711	8-719-988-61	DIODE 1SS355TE-17	
D1712	8-719-914-44	DIODE DAP202K-T-146	
D1713	8-719-914-44	DIODE DAP202K-T-146	
D1714	8-719-988-61	DIODE 1SS355TE-17	
D1715	8-719-988-61	DIODE 1SS355TE-17	
D1716	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1717	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1718	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1719	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1720	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1721	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1722	8-719-069-56	DIODE UDZSTE-176.2B	
D1723	8-719-083-63	DIODE UDZSTE-1713B	
D1724	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1725	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1726	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1727	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1728	8-719-069-56	DIODE UDZSTE-176.2B	
D1729	8-719-083-63	DIODE UDZSTE-1713B	
D1730	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1731	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1732	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1733	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1734	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1735	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1736	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1737	8-719-071-15	DIODE HZM6.8ZWA1TL	
D1738	8-719-069-56	DIODE UDZSTE-176.2B	
D1740	8-719-060-48	DIODE RB751V-40TE-17	
D1741	8-719-914-43	DIODE DAN202K-T-146	
D1743	8-719-914-43	DIODE DAN202K-T-146	
		< FERRITE BEAD >	
FB1701	1-469-796-21	FERRITE 0uH	
FB1702	1-469-796-21	FERRITE 0uH	
FB1703	1-469-796-21	FERRITE 0uH	
FB1704	1-469-796-21	FERRITE 0uH	
FB1705	1-469-796-21	FERRITE 0uH	
FB1706	1-469-796-21	FERRITE 0uH	
FB1707	1-469-796-21	FERRITE 0uH	
FB1708	1-469-796-21	FERRITE 0uH	
FB1709	1-469-796-21	FERRITE 0uH	
FB1710	1-469-796-21	FERRITE 0uH	
FB1711	1-469-796-21	FERRITE 0uH	
FB1712	1-469-796-21	FERRITE 0uH	
FB1713	1-469-796-21	FERRITE 0uH	
FB1714	1-469-796-21	FERRITE 0uH	
FB1724	1-469-796-21	FERRITE 0uH	
		< IC >	
IC1701	8-759-671-94	IC TC74HC4053AF(EL)	
IC1702	8-759-826-47	IC LA73052-TLM	
IC1704	6-703-623-01	IC MM1503XNRE	
IC1705	6-703-621-01	IC MM1506XNRE	
IC1706	6-703-621-01	IC MM1506XNRE	
IC1707	6-703-621-01	IC MM1506XNRE	
IC1708	8-759-677-33	IC MM1228XFBE	
IC1709	6-703-622-01	IC MM1508XNRE	
IC1710	6-703-620-01	IC TC7SZ02F(TE85R)	
IC1711	8-759-826-47	IC LA73052-TLM	
		< COIL >	
L1701	1-400-145-21	INDUCTOR 47uH	
L1702	1-400-145-21	INDUCTOR 47uH	
L1703	1-400-145-21	INDUCTOR 47uH	
L1704	1-400-145-21	INDUCTOR 47uH	
L1705	1-400-145-21	INDUCTOR 47uH	
L1707	1-400-145-21	INDUCTOR 47uH	
L1708	1-400-145-21	INDUCTOR 47uH	
L1709	1-400-145-21	INDUCTOR 47uH	
L1710	1-400-145-21	INDUCTOR 47uH	
L1711	1-400-145-21	INDUCTOR 47uH	
		< TRANSISTOR >	
Q1701	8-729-421-19	TRANSISTOR UN2213-TX	
Q1702	8-729-421-19	TRANSISTOR UN2213-TX	
Q1703	8-729-045-17	TRANSISTOR 2SB1561T100Q	
Q1704	8-729-421-19	TRANSISTOR UN2213-TX	
Q1706	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q1707	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q1708	8-729-421-19	TRANSISTOR UN2213-TX	
Q1709	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q1710	8-729-424-08	TRANSISTOR UN2111-TX	
Q1711	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1712	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1713	8-729-421-22	TRANSISTOR UN2211-TX	
Q1714	8-729-900-52	TRANSISTOR UN2214-TX	
Q1715	8-729-424-08	TRANSISTOR UN2111-TX	
Q1716	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	

Ref. No.	Part No.	Description			Remarks
Q1717	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q1718	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q1719	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q1720	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q1721	8-729-900-52	TRANSISTOR	UN2214-TX		
Q1722	8-729-421-19	TRANSISTOR	UN2213-TX		
Q1723	8-729-421-19	TRANSISTOR	UN2213-TX		
Q1724	8-729-421-19	TRANSISTOR	UN2213-TX		
Q1725	8-729-421-19	TRANSISTOR	UN2213-TX		
Q1726	8-729-900-52	TRANSISTOR	UN2214-TX		
Q1727	8-729-424-08	TRANSISTOR	UN2111-TX		
Q1729	8-729-424-08	TRANSISTOR	UN2111-TX		
Q1730	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q1731	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
		< RESISTOR >			
R1701	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1702	1-216-817-11	METAL CHIP	470	5%	1/16W
R1703	1-216-817-11	METAL CHIP	470	5%	1/16W
R1704	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1707	1-216-835-11	METAL CHIP	15K	5%	1/16W
R1708	1-216-864-11	METAL CHIP	0	5%	1/16W
R1710	1-211-989-11	METAL CHIP	68	0.5%	1/10W
R1711	1-216-864-11	METAL CHIP	0	5%	1/16W
R1712	1-216-864-11	METAL CHIP	0	5%	1/16W
R1713	1-216-864-11	METAL CHIP	0	5%	1/16W
R1714	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1719	1-216-801-11	METAL CHIP	22	5%	1/16W
R1720	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1721	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1722	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1723	1-216-817-11	METAL CHIP	470	5%	1/16W
R1724	1-216-817-11	METAL CHIP	470	5%	1/16W
R1726	1-216-801-11	METAL CHIP	22	5%	1/16W
R1729	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1730	1-216-813-11	METAL CHIP	220	5%	1/16W
R1731	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1732	1-216-801-11	METAL CHIP	22	5%	1/16W
R1733	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1734	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1735	1-216-813-11	METAL CHIP	220	5%	1/16W
R1736	1-216-813-11	METAL CHIP	220	5%	1/16W
R1737	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1738	1-216-801-11	METAL CHIP	22	5%	1/16W
R1739	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1740	1-216-864-11	METAL CHIP	0	5%	1/16W
R1741	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1742	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1743	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1744	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1745	1-216-813-11	METAL CHIP	220	5%	1/16W
R1747	1-216-813-11	METAL CHIP	220	5%	1/16W
R1748	1-216-813-11	METAL CHIP	220	5%	1/16W
R1749	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1750	1-216-813-11	METAL CHIP	220	5%	1/16W
R1751	1-216-813-11	METAL CHIP	220	5%	1/16W
R1752	1-211-973-11	METAL CHIP	15	0.5%	1/10W
R1753	1-211-989-11	METAL CHIP	68	0.5%	1/10W
R1754	1-211-973-11	METAL CHIP	15	0.5%	1/10W
R1755	1-211-989-11	METAL CHIP	68	0.5%	1/10W
R1756	1-216-841-11	METAL CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R1757	1-216-839-11	METAL CHIP	33K	5%	1/16W
R1758	1-216-801-11	METAL CHIP	22	5%	1/16W
R1759	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1760	1-211-973-11	METAL CHIP	15	0.5%	1/10W
R1761	1-211-989-11	METAL CHIP	68	0.5%	1/10W
R1762	1-211-973-11	METAL CHIP	15	0.5%	1/10W
R1763	1-211-989-11	METAL CHIP	68	0.5%	1/10W
R1765	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R1766	1-216-819-11	METAL CHIP	680	5%	1/16W
R1767	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R1768	1-216-819-11	METAL CHIP	680	5%	1/16W
R1769	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R1770	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R1772	1-216-815-11	METAL CHIP	330	5%	1/16W
R1773	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1774	1-211-989-11	METAL CHIP	68	0.5%	1/10W
R1775	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1776	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1777	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1778	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1779	1-216-815-11	METAL CHIP	330	5%	1/16W
R1780	1-216-815-11	METAL CHIP	330	5%	1/16W
R1781	1-216-815-11	METAL CHIP	330	5%	1/16W
R1782	1-216-815-11	METAL CHIP	330	5%	1/16W
R1783	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1784	1-216-817-11	METAL CHIP	470	5%	1/16W
R1785	1-216-817-11	METAL CHIP	470	5%	1/16W
R1786	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1787	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1788	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1789	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1790	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1791	1-216-819-11	METAL CHIP	680	5%	1/16W
R1792	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1793	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1794	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1795	1-216-864-11	METAL CHIP	0	5%	1/16W
R1796	1-216-864-11	METAL CHIP	0	5%	1/16W
R1798	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1799	1-216-815-11	METAL CHIP	330	5%	1/16W
R1800	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1801	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1802	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1803	1-216-817-11	METAL CHIP	470	5%	1/16W
R1804	1-216-817-11	METAL CHIP	470	5%	1/16W
R1805	1-216-817-11	METAL CHIP	470	5%	1/16W
R1806	1-216-817-11	METAL CHIP	470	5%	1/16W
R1807	1-216-819-11	METAL CHIP	680	5%	1/16W
R1808	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1809	1-216-864-11	METAL CHIP	0	5%	1/16W
R1810	1-216-864-11	METAL CHIP	0	5%	1/16W
R1811	1-216-815-11	METAL CHIP	330	5%	1/16W
R1812	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1813	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1814	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1815	1-211-990-11	METAL CHIP	75	0.5%	1/10W
R1817	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1818	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1819	1-216-815-11	METAL CHIP	330	5%	1/16W
R1821	1-211-973-11	METAL CHIP	15	0.5%	1/10W

Ref. No.	Part No.	Description			Remarks
R1822	1-216-864-11	METAL CHIP	0	5%	1/16W
R1823	1-216-815-11	METAL CHIP	330	5%	1/16W
R1826	1-216-815-11	METAL CHIP	330	5%	1/16W
R1829	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1830	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1832	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1833	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1836	1-216-801-11	METAL CHIP	22	5%	1/16W
		< RELAY >			
RY1701	1-755-184-21	RELAY			
RY1702	1-755-184-21	RELAY			
RY1703	1-755-184-21	RELAY			
RY1704	1-755-184-21	RELAY			
RY1705	1-755-184-21	RELAY			
RY1706	1-755-184-21	RELAY			
RY1709	1-755-184-21	RELAY			
RY1710	1-755-184-21	RELAY			

Ref. No.	Part No.	Description			Remarks
*	A-6061-470-A	FL-130 (E) BOARD, COMPLETE **************************			
	3-081-222-01	SPACER			
		< CAPACITOR >			
C1702	1-124-589-11	ELECT	47uF	20%	16V
C1703	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1705	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1706	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C1708	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1711	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1712	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
		< CONNECTOR >			
CN1702	1-774-766-11	CONNECTOR, FFC/FPC 11P			
CN1703	1-785-828-21	CONNECTOR, SQUARE TYPE 4P			
* CN1704	1-695-108-11	PIN, CONNECTOR (PC BOARD) 6P			
CN1705	1-573-489-11	PIN, CONNECTOR (PC BOARD) 11P			
		< DIODE >			
D1702	6-500-287-01	DIODE SML-512MWT86			
D1703	8-719-077-09	DIODE CL-196HR-CD-T			
D1704	8-719-801-78	DIODE MA152WK-TX			
D1705	8-719-067-40	DIODE STZ6.8N-T146			
D1706	8-719-067-40	DIODE STZ6.8N-T146			
D1707	8-719-067-40	DIODE STZ6.8N-T146			
D1708	8-719-067-40	DIODE STZ6.8N-T146			
D1709	8-719-067-40	DIODE STZ6.8N-T146			
D1710	8-719-067-40	DIODE STZ6.8N-T146			
D1711	8-719-067-40	DIODE STZ6.8N-T146			
D1712	8-719-083-60	DIODE UDZSTE-174.7B			
D1713	8-719-988-61	DIODE 1SS355TE-17			
		< FERRITE BEAD >			
FB1701	1-414-233-22	FERRITE	0uH		
FB1702	1-414-233-22	FERRITE	0uH		
FB1703	1-414-233-22	FERRITE	0uH		
FB1704	1-414-230-22	FERRITE	0uH		
		< IC >			
IC1701	6-703-765-01	IC ML9206-07MBZ03B			
		< JACK >			
J1701	1-694-980-21	TERMINAL BOARD (S TERMINAL+3P)			
		< FLUORESCENT INDICATOR >			
ND1701	1-518-883-11	TUBE, FLUORESCENT INDICATOR			
		< TRANSISTOR >			
Q1703	8-729-421-22	TRANSISTOR	UN2211-TX		
Q1704	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX		
		< RESISTOR >			
R1704	1-216-813-11	METAL CHIP	220	5%	1/16W
R1705	1-216-817-11	METAL CHIP	470	5%	1/16W
R1707	1-216-809-11	METAL CHIP	100	5%	1/16W
R1708	1-216-809-11	METAL CHIP	100	5%	1/16W
R1709	1-216-809-11	METAL CHIP	100	5%	1/16W
R1710	1-216-809-11	METAL CHIP	100	5%	1/16W
R1711	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R1712	1-218-285-11	METAL CHIP	75	5%	1/10W
R1713	1-218-285-11	METAL CHIP	75	5%	1/10W
R1714	1-218-285-11	METAL CHIP	75	5%	1/10W
R1715	1-216-849-11	METAL CHIP	220K	5%	1/16W
R1716	1-216-849-11	METAL CHIP	220K	5%	1/16W
R1718	1-216-864-11	METAL CHIP	0	5%	1/16W
R1719	1-216-864-11	METAL CHIP	0	5%	1/16W
R1724	1-216-833-11	METAL CHIP	10K	5%	1/16W
		< SWITCH >			
S1701	1-771-349-21	SWITCH, TACT			

Ref. No.	Part No.	Description			Remarks
*	A-6061-472-A	FR-195 (E) BOARD, COMPLETE **************************			
		< CAPACITOR >			
C101	1-124-589-11	ELECT	47uF	20%	16V
C104	1-124-589-11	ELECT	47uF	20%	16V
C105	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
		< CONNECTOR >			
CN101	1-779-937-11	CONNECTOR, FFC/FPC 19P			
CN102	1-774-766-11	CONNECTOR, FFC/FPC 11P			
		< DIODE >			
D102	6-500-287-01	DIODE SML-512MWT86			
D103	6-500-252-01	DIODE SML-512WWT86			
D104	6-500-252-01	DIODE SML-512WWT86			
D105	6-500-252-01	DIODE SML-512WWT86			
D106	6-500-252-01	DIODE SML-512WWT86			
D107	6-500-252-01	DIODE SML-512WWT86			
D109	8-719-077-09	DIODE CL-196HR-CD-T			
D111	6-500-252-01	DIODE SML-512WWT86			
D112	6-500-252-01	DIODE SML-512WWT86			
D114	8-719-077-09	DIODE CL-196HR-CD-T			

Ref. No.	Part No.	Description			Remarks
D115	6-500-252-01	DIODE SML-512WWT86			
D116	6-500-252-01	DIODE SML-512WWT86			
D117	6-500-252-01	DIODE SML-512WWT86			
D118	6-500-252-01	DIODE SML-512WWT86			
D119	8-719-077-09	DIODE CL-196HR-CD-T			
		< IC >			
IC101	6-600-162-01	IC GP1UM28SXK0F			
IC103	6-701-888-01	IC BU2152FS			
		< TRANSISTOR >			
Q101	8-729-049-31	TRANSISTOR	2SB710A-RTX		
Q102	8-729-421-22	TRANSISTOR	UN2211-TX		
		< RESISTOR >			
R101	1-216-819-11	METAL CHIP	680	5%	1/16W
R102	1-216-864-11	METAL CHIP	0	5%	1/16W
R106	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R107	1-216-821-11	METAL CHIP	1K	5%	1/16W
R108	1-216-821-11	METAL CHIP	1K	5%	1/16W
R109	1-216-821-11	METAL CHIP	1K	5%	1/16W
R110	1-216-821-11	METAL CHIP	1K	5%	1/16W
R112	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R113	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R114	1-216-821-11	METAL CHIP	1K	5%	1/16W
R116	1-216-821-11	METAL CHIP	1K	5%	1/16W
R117	1-216-821-11	METAL CHIP	1K	5%	1/16W
R119	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R120	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R121	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R122	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R123	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R124	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R125	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R126	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R127	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R128	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R129	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R130	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R131	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R132	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R133	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R134	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R135	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R136	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R137	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R138	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R139	1-216-837-11	METAL CHIP	22K	5%	1/16W
R140	1-216-837-11	METAL CHIP	22K	5%	1/16W
R141	1-216-821-11	METAL CHIP	1K	5%	1/16W
R142	1-216-821-11	METAL CHIP	1K	5%	1/16W
R143	1-216-821-11	METAL CHIP	1K	5%	1/16W
R144	1-216-821-11	METAL CHIP	1K	5%	1/16W
R147	1-216-864-11	METAL CHIP	0	5%	1/16W
R148	1-216-833-11	METAL CHIP	10K	5%	1/16W
R149	1-216-809-11	METAL CHIP	100	5%	1/16W
R151	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R152	1-216-825-11	METAL CHIP	2.2K	5%	1/16W

Ref. No.	Part No.	Description	Remarks
		< SWITCH >	
S101	1-771-349-21	SWITCH, TACT	
S102	1-771-349-21	SWITCH, TACT	
S103	1-771-349-21	SWITCH, TACT	
S104	1-771-349-21	SWITCH, TACT	
S105	1-771-349-21	SWITCH, TACT	
S106	1-771-349-21	SWITCH, TACT	
S107	1-771-349-21	SWITCH, TACT	
S108	1-786-502-11	SWITCH, TACTILE	
S109	1-771-349-21	SWITCH, TACT	
S110	1-771-349-21	SWITCH, TACT	
S111	1-771-349-21	SWITCH, TACT	
S112	1-771-349-21	SWITCH, TACT	
S113	1-771-349-21	SWITCH, TACT	
S114	1-771-349-21	SWITCH, TACT	
S115	1-771-349-21	SWITCH, TACT	
S116	1-771-349-21	SWITCH, TACT	
S117	1-771-349-21	SWITCH, TACT	
S118	1-771-349-21	SWITCH, TACT	
S119	1-771-349-21	SWITCH, TACT	
S120	1-771-349-21	SWITCH, TACT	
S121	1-771-349-21	SWITCH, TACT	
S122	1-771-349-21	SWITCH, TACT	

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* A-6071-260-A RD-045 (E) BOARD, COMPLETE(SVC) (AEP)
* A-6071-262-A RD-045 (EC) BOARD, COMPLETE(SVC) (UK)

		< CAPACITOR >			
C101	1-126-607-11	ELECT CHIP	47uF	20%	4V
C102	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C106	1-162-911-11	CERAMIC CHIP	6PF	0.50PF	50V
C107	1-162-911-11	CERAMIC CHIP	6PF	0.50PF	50V
C110	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C111	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C113	1-126-607-11	ELECT CHIP	47uF	20%	4V
C114	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C117	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C119	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C120	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C121	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C122	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C123	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C124	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C125	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C126	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C127	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C128	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C129	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C130	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C131	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C201	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C202	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C205	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C206	1-126-607-11	ELECT CHIP	47uF	20%	4V
C401	1-124-779-00	ELECT CHIP	10uF	20%	16V
C402	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C403	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C406	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V

RD-045

Ref. No.	Part No.	Description			Remarks
C408	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C409	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C410	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C411	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C412	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C413	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C414	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C415	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C416	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C419	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C420	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C421	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C422	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C423	1-124-779-00	ELECT CHIP	10uF	20%	16V
C424	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C425	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C426	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C427	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C428	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C601	1-124-779-00	ELECT CHIP	10uF	20%	16V
C602	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C603	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C605	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C606	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C607	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C609	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C610	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C611	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C612	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C613	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C614	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C615	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C616	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C617	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C618	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C619	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C620	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C621	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C622	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C701	1-126-607-11	ELECT CHIP	47uF	20%	4V
C702	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C703	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C704	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C705	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C706	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C707	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C708	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C709	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C710	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C711	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C712	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C713	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C715	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C717	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C718	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C719	1-126-607-11	ELECT CHIP	47uF	20%	4V
C725	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C726	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C727	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C728	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C729	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C730	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C731	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C732	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C733	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C734	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C901	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C902	1-104-610-11	ELECT CHIP	47uF	20.00%	4V
C903	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C904	1-104-610-11	ELECT CHIP	47uF	20.00%	4V
C907	1-104-610-11	ELECT CHIP	47uF	20.00%	4V
C911	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C912	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C913	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C914	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C918	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C920	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C924	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C925	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C926	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C927	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C928	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C930	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C933	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C934	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C935	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C936	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C938	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C939	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C940	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C941	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1001	1-126-607-11	ELECT CHIP	47uF	20%	4V
C1002	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1003	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1004	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1005	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1006	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1007	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1008	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1009	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1010	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1011	1-126-607-11	ELECT CHIP	47uF	20%	4V
C1012	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1013	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1014	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1015	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1016	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1017	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1019	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1020	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1021	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1022	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1023	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1101	1-126-607-11	ELECT CHIP	47uF	20%	4V
C1102	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1103	1-126-607-11	ELECT CHIP	47uF	20%	4V
C1104	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1106	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1107	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1108	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V

Ref. No.	Part No.	Description			Remarks
C1109	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1110	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1111	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1112	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1113	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1114	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1115	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1116	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1117	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1118	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1119	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1120	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1121	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1122	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1123	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1124	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1125	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1126	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1127	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1130	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1131	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1201	1-126-193-11	ELECT	1uF	20%	50V
C1204	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1205	1-124-779-00	ELECT CHIP	10uF	20%	16V
C1206	1-124-779-00	ELECT CHIP	10uF	20%	16V
C1207	1-124-779-00	ELECT CHIP	10uF	20%	16V
C1208	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1209	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1210	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1211	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1212	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1213	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1214	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1215	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1216	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1217	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1218	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1219	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1220	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1221	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1222	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1223	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1224	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1225	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1226	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1227	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1229	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1230	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1231	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1232	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1233	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1234	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1235	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1236	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1237	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1238	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1239	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1240	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1241	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1242	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V

Ref. No.	Part No.	Description			Remarks
C1243	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1301	1-126-607-11	ELECT CHIP	47uF	20%	4V
C1302	1-126-607-11	ELECT CHIP	47uF	20%	4V
C1303	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1304	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1305	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1306	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1307	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1308	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1309	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1310	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1312	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1313	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1314	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1315	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1316	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1317	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1318	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1319	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1320	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1402	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1403	1-126-607-11	ELECT CHIP	47uF	20%	4V
C1404	1-115-416-11	CERAMIC CHIP	0.001uF	5.00%	25V
C1406	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1407	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1409	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1410	1-126-607-11	ELECT CHIP	47uF	20%	4V
C1411	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1412	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1413	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1414	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1415	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1416	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1417	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1421	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1422	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1423	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1433	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1434	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1605	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1606	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1612	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1613	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1614	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C1615	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C1616	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1618	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1631	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1632	1-126-607-11	ELECT CHIP	47uF	20%	4V
C1636	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1703	1-126-393-11	ELECT CHIP	33uF	20.00%	10V
C1704	1-104-609-11	ELECT CHIP	100uF	20.00%	4V
C1705	1-126-393-11	ELECT CHIP	33uF	20.00%	10V
C1708	1-107-725-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1709	1-107-725-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1710	1-107-725-11	CERAMIC CHIP	0.1uF	10.00%	16V
C1722	1-126-393-11	ELECT CHIP	33uF	20.00%	10V
C1723	1-104-610-11	ELECT CHIP	47uF	20.00%	4V
C1725	1-126-393-11	ELECT CHIP	33uF	20.00%	10V
C1728	1-131-661-21	ELECT CHIP	100uF	20%	10V

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Ref. No.	Part No.	Description			Remarks
C2002	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2003	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2005	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2006	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2007	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2008	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2009	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2010	1-162-913-11	CERAMIC CHIP	8PF	0.50PF	50V
C2011	1-162-913-11	CERAMIC CHIP	8PF	0.50PF	50V
C2012	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2013	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2014	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2015	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2016	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2019	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2021	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2023	1-164-388-91	CERAMIC CHIP	270PF	5.00%	50V
C2100	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2101	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2102	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2103	1-104-610-11	ELECT CHIP	47uF	20.00%	4V
C2105	1-104-610-11	ELECT CHIP	47uF	20.00%	4V
C2110	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2111	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2112	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2113	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2114	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2115	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2116	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2117	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2118	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2119	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2120	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2121	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2122	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2123	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2124	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2125	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2126	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2127	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2128	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2129	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2130	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2133	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2134	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2135	1-126-209-11	ELECT CHIP	100uF	20.00%	4V
C2137	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2143	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2144	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2201	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2202	1-126-390-11	ELECT CHIP	22uF	20.00%	6.3V
C2203	1-104-609-11	ELECT CHIP	100uF	20.00%	4V
C2204	1-104-609-11	ELECT CHIP	100uF	20.00%	4V
C2205	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2206	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2207	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C2208	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2209	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2210	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C2211	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V

Ref. No.	Part No.	Description			Remarks
C2213	1-119-923-11	CERAMIC CHIP	0.047uF	10.00%	10V
C2214	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2215	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2216	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2217	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C2218	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2219	1-119-923-11	CERAMIC CHIP	0.047uF	10.00%	10V
C2220	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2221	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2224	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2225	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2227	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C2228	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C2231	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2232	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2233	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C2234	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2235	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2236	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C2237	1-119-923-11	CERAMIC CHIP	0.047uF	10.00%	10V
C2238	1-119-923-11	CERAMIC CHIP	0.047uF	10.00%	10V
C2239	1-119-923-11	CERAMIC CHIP	0.047uF	10.00%	10V
C2240	1-119-923-11	CERAMIC CHIP	0.047uF	10.00%	10V
C2241	1-119-923-11	CERAMIC CHIP	0.047uF	10.00%	10V
C2242	1-119-923-11	CERAMIC CHIP	0.047uF	10.00%	10V
C2243	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2244	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2245	1-164-874-11	CERAMIC CHIP	100PF	5.00%	50V
C2246	1-164-874-11	CERAMIC CHIP	100PF	5.00%	50V
C2247	1-164-874-11	CERAMIC CHIP	100PF	5.00%	50V
C2248	1-164-874-11	CERAMIC CHIP	100PF	5.00%	50V
C2249	1-164-874-11	CERAMIC CHIP	100PF	5.00%	50V
C2250	1-164-874-11	CERAMIC CHIP	100PF	5.00%	50V
C2251	1-164-874-11	CERAMIC CHIP	100PF	5.00%	50V
C2252	1-164-874-11	CERAMIC CHIP	100PF	5.00%	50V
C2322	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C2323	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C2324	1-126-209-11	ELECT CHIP	100uF	20.00%	4V
C2325	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C2328	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C2329	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2330	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2331	1-115-414-11	CERAMIC CHIP	820PF	5.00%	25V
C2332	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C2333	1-126-209-11	ELECT CHIP	100uF	20.00%	4V
C2334	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C2335	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C2336	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2337	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2338	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2339	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C2340	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2341	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2342	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2401	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2501	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2502	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2503	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2504	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2505	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V

Ref. No.	Part No.	Description			Remarks
C2506	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2507	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2508	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2509	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2510	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2511	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2512	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2513	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2601	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2602	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C2606	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
		< CONNECTOR >			
* CN102	1-764-177-11	PIN, CONNECTOR (SMD)(1.5MM) 7P			
CN403	1-770-594-21	CONNECTOR, BOARD TO BOARD 5P (UK)			
CN1103	1-815-231-11	CONNECTOR, FFC/FPC (ZIF) 40P			
CN1701	1-815-889-21	PIN, CONNECTOR (PC BOARD) 14P			
CN1902	1-815-231-11	CONNECTOR, FFC/FPC (ZIF) 40P			
CN2001	1-770-161-21	PIN, CONNECTOR (PC BOARD) 6P			
		< DIODE >			
D103	8-719-071-15	DIODE	HZM6.8ZWA1TL		
D104	8-719-071-15	DIODE	HZM6.8ZWA1TL		
D1601	8-719-056-23	DIODE	MA2S111-(K8).SO		
D1602	8-719-056-23	DIODE	MA2S111-(K8).SO		
D2100	8-719-027-95	DIODE	HSM88WK-TL		
D2101	8-719-055-86	DIODE	KV1470TL1-3		
		< FERRITE BEAD >			
FB901	1-469-324-21	FERRITE	0uH		
FB1302	1-469-324-21	FERRITE	0uH		
FB1601	1-469-324-21	FERRITE	0uH		
FB1701	1-469-324-21	FERRITE	0uH		
FB1702	1-469-324-21	FERRITE	0uH		
FB1703	1-469-324-21	FERRITE	0uH		
FB1704	1-469-324-21	FERRITE	0uH		
FB1705	1-469-324-21	FERRITE	0uH		
FB1706	1-469-324-21	FERRITE	0uH		
FB1707	1-469-324-21	FERRITE	0uH		
FB1901	1-469-083-21	FERRITE	0uH		
FB1902	1-469-081-21	FERRITE	0uH		
		< FILTER >			
FL101	1-234-177-21	FERRITE	0uH		
FL103	1-234-177-21	FERRITE	0uH		
FL201	1-234-177-21	FERRITE	0uH		
FL401	1-234-177-21	FERRITE	0uH		
FL402	1-234-177-21	FERRITE	0uH		
FL601	1-234-177-21	FERRITE	0uH		
FL702	1-234-177-21	FERRITE	0uH		
FL901	1-234-177-21	FERRITE	0uH		
FL902	1-234-177-21	FERRITE	0uH		
FL903	1-234-177-21	FERRITE	0uH		
FL1101	1-234-177-21	FERRITE	0uH		
FL1102	1-234-177-21	FERRITE	0uH		
FL1201	1-234-177-21	FERRITE	0uH		
FL1202	1-234-177-21	FERRITE	0uH		
FL1203	1-234-177-21	FERRITE	0uH		
FL1301	1-234-177-21	FERRITE	0uH		
FL1302	1-234-177-21	FERRITE	0uH		
FL1401	1-234-177-21	FERRITE	0uH		
FL1402	1-234-177-21	FERRITE	0uH		
FL1602	1-234-177-21	FERRITE	0uH		
FL1701	1-234-177-21	FERRITE	0uH		
FL1702	1-234-177-21	FERRITE	0uH		
FL1703	1-234-177-21	FERRITE	0uH		
FL1704	1-234-177-21	FERRITE	0uH		
FL1705	1-234-177-21	FERRITE	0uH		
FL1706	1-234-177-21	FERRITE	0uH		
FL1707	1-234-177-21	FERRITE	0uH		
FL2002	1-234-177-21	FERRITE	0uH		
FL2101	1-234-177-21	FERRITE	0uH		
FL2102	1-234-177-21	FERRITE	0uH		
FL2103	1-234-177-21	FERRITE	0uH		
FL2301	1-234-177-21	FERRITE	0uH		
FL2601	1-234-177-21	FERRITE	0uH		
		< IC >			
IC104	6-703-446-01	IC	HD6417292ABP200		
IC105	8-759-573-97	IC	SN74LVC541APWR		
IC106	8-759-679-58	IC	SN74AHCT541PWR		
IC401	6-700-421-01	IC	SN74LVCH16245ADGGR		
IC402	6-701-025-01	IC	SN74LVC16244ADGGR		
IC404	6-700-421-01	IC	SN74LVCH16245ADGGR		
IC405	6-701-025-01	IC	SN74LVC16244ADGGR		
IC406	8-759-392-81	IC	SN74LVC16245ADGGR		
IC407	6-701-025-01	IC	SN74LVC16244ADGGR		
IC408	6-701-025-01	IC	SN74LVC16244ADGGR		
IC410	6-701-025-01	IC	SN74LVC16244ADGGR		
IC411	8-759-392-81	IC	SN74LVC16245ADGGR		
IC412	6-701-025-01	IC	SN74LVC16244ADGGR		
IC601	6-703-896-01	IC	K9F2808U0C-YCB0T		
IC602	6-704-288-01	IC	CXD9734AQ		
IC701	6-703-425-01	IC	CXD9735Q		
IC702	6-700-352-01	IC	SN74CBTLV3253PWR		
IC703	6-700-352-01	IC	SN74CBTLV3253PWR		
IC705	8-759-679-55	IC	SN74LVC08APWR		
IC707	6-703-461-11	IC	CY2309ZC-1HT		
IC708	8-759-679-55	IC	SN74LVC08APWR		
IC903	6-703-412-01	IC	uPD61052GD-LML		
IC906	8-759-589-36	IC	MT48LC4M16A2TG-75		
IC906	6-703-895-01	IC	MT48LC4M16A2TG-75-F		
IC907	8-759-589-36	IC	MT48LC4M16A2TG-75		
IC907	6-703-895-01	IC	MT48LC4M16A2TG-75-F		
IC1001	6-703-504-01	IC	CXD9754R		
IC1002	6-703-434-01	IC	CV-VCP102		
IC1101	6-703-719-01	IC	CXD9736GG		
IC1202	6-702-300-01	IC	TK11118CSCL-G		
IC1203	8-752-416-45	IC	CXD1935Q		
IC1204	6-700-098-01	IC	HY57V641620HGT-P-TR-V		
IC1205	6-703-461-11	IC	CY2309ZC-1HT		
IC1301	8-759-694-34	IC	CXD9537AR		
IC1401	6-700-353-01	IC	MT48LC1M16A1TG-6STR		
IC1402	8-759-680-43	IC	TL750B5		
IC1403	6-700-353-01	IC	MT48LC1M16A1TG-6STR		
IC1601	6-703-644-01	IC	AD1895AYRSRL		
IC1603	8-759-679-55	IC	SN74LVC08APWR		
IC1605	6-701-877-01	IC	SM8707EV-G-E2		

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Ref. No.	Part No.	Description			Remarks
IC1606	8-759-679-55	IC	SN74LVC08APWR		
IC1701	6-703-758-01	IC	PQ050DZ01ZPH		
IC1702	6-703-754-01	IC	PQ1L153M2SPQ		
IC1707	6-703-756-01	IC	PQ1L503M2SPQ		
IC1708	6-703-755-01	IC	PQ1L183M2SPQ		
IC1710	6-703-757-01	IC	PQ025EH02ZPH		
IC2001	6-703-229-01	IC	uPD72852GB-8EU		
IC2002	6-702-302-01	IC	TK11133CSCL-G		
IC2100	8-759-233-64	IC	TC74HCU04AF(EL)		
IC2102	6-703-230-01	IC	uPD72893GD-LML		
IC2103	6-701-970-01	IC	K4S161622D-UC80T		
IC2104	6-703-490-01	IC	MBM29LV200BC-70PFTN-SFK		
IC2110	6-701-877-01	IC	SM8707EV-G-E2		
IC2201	8-759-431-14	IC	PQ3DZ53U		
IC2202	6-701-724-01	IC	SAA7118E/V1.518		
IC2303	6-701-079-01	IC	ADV7300AKST		
IC2304	6-702-301-01	IC	TK11125CSCL-G		
IC2402	8-759-573-97	IC	SN74LVC541APWR		
IC2501	6-703-468-01	IC	CXD9741R		
IC2602	6-803-182-01	IC	MR27V3202F-UCTPZ04B		
		< COIL >			
L2100	1-410-371-41	INDUCTOR	1.5uH		
L2301	1-400-145-21	INDUCTOR	47uH		
		< LINE FILTER >			
LF2001	1-419-370-21	INDUCTOR	0uH		
LF2002	1-419-370-21	INDUCTOR	0uH		
		< TRANSISTOR >			
Q2104	1-801-806-11	TRANSISTOR	DTC144EKA-T146		
Q2301	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX		
Q2302	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX		
Q2303	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX		
Q2304	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX		
Q2305	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX		
Q2306	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX		
		< RESISTOR >			
R109	1-218-965-11	RES-CHIP	10K	5%	1/16W
R111	1-218-965-11	RES-CHIP	10K	5%	1/16W
R114	1-218-965-11	RES-CHIP	10K	5%	1/16W
R116	1-218-965-11	RES-CHIP	10K	5%	1/16W
R118	1-218-965-11	RES-CHIP	10K	5%	1/16W
R120	1-218-965-11	RES-CHIP	10K	5%	1/16W
R121	1-218-990-11	SHORT CHIP	0		
R122	1-218-965-11	RES-CHIP	10K	5%	1/16W
R124	1-218-935-11	RES-CHIP	33	5%	1/16W
R125	1-218-935-11	RES-CHIP	33	5%	1/16W
R126	1-218-965-11	RES-CHIP	10K	5%	1/16W
R127	1-218-965-11	RES-CHIP	10K	5%	1/16W
R130	1-218-965-11	RES-CHIP	10K	5%	1/16W
R132	1-218-965-11	RES-CHIP	10K	5%	1/16W
R134	1-218-965-11	RES-CHIP	10K	5%	1/16W
R136	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R137	1-218-965-11	RES-CHIP	10K	5%	1/16W
R138	1-218-965-11	RES-CHIP	10K	5%	1/16W
R139	1-218-935-11	RES-CHIP	33	5%	1/16W
R140	1-218-941-81	RES-CHIP	100	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R141	1-218-937-11	RES-CHIP	47	5%	1/16W
R142	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R143	1-218-937-11	RES-CHIP	47	5%	1/16W
R144	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R145	1-218-937-11	RES-CHIP	47	5%	1/16W
R146	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R148	1-218-937-11	RES-CHIP	47	5%	1/16W
R149	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R150	1-218-937-11	RES-CHIP	47	5%	1/16W
R151	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R152	1-218-937-11	RES-CHIP	47	5%	1/16W
R153	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R154	1-218-935-11	RES-CHIP	33	5%	1/16W
R155	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R156	1-218-965-11	RES-CHIP	10K	5%	1/16W
R157	1-218-965-11	RES-CHIP	10K	5%	1/16W
R158	1-218-937-11	RES-CHIP	47	5%	1/16W
R159	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R160	1-218-965-11	RES-CHIP	10K	5%	1/16W
R161	1-218-965-11	RES-CHIP	10K	5%	1/16W
R162	1-218-965-11	RES-CHIP	10K	5%	1/16W
R164	1-218-965-11	RES-CHIP	10K	5%	1/16W
R165	1-218-965-11	RES-CHIP	10K	5%	1/16W
R166	1-218-965-11	RES-CHIP	10K	5%	1/16W
R167	1-218-965-11	RES-CHIP	10K	5%	1/16W
R168	1-218-965-11	RES-CHIP	10K	5%	1/16W
R169	1-218-965-11	RES-CHIP	10K	5%	1/16W
R170	1-218-965-11	RES-CHIP	10K	5%	1/16W
R171	1-218-965-11	RES-CHIP	10K	5%	1/16W
R172	1-218-990-11	SHORT CHIP	0		
R174	1-218-965-11	RES-CHIP	10K	5%	1/16W
R183	1-218-965-11	RES-CHIP	10K	5%	1/16W
R184	1-218-965-11	RES-CHIP	10K	5%	1/16W
R185	1-218-965-11	RES-CHIP	10K	5%	1/16W
R186	1-218-965-11	RES-CHIP	10K	5%	1/16W
R188	1-218-965-11	RES-CHIP	10K	5%	1/16W
R189	1-218-937-11	RES-CHIP	47	5%	1/16W
R190	1-218-937-11	RES-CHIP	47	5%	1/16W
R191	1-218-937-11	RES-CHIP	47	5%	1/16W
R192	1-218-937-11	RES-CHIP	47	5%	1/16W
R193	1-218-937-11	RES-CHIP	47	5%	1/16W
R194	1-218-937-11	RES-CHIP	47	5%	1/16W
R195	1-218-937-11	RES-CHIP	47	5%	1/16W
R196	1-218-937-11	RES-CHIP	47	5%	1/16W
R197	1-218-933-11	RES-CHIP	22	5%	1/16W
R198	1-218-935-11	RES-CHIP	33	5%	1/16W
R199	1-218-937-11	RES-CHIP	47	5%	1/16W
R201	1-218-965-11	RES-CHIP	10K	5%	1/16W
R211	1-218-965-11	RES-CHIP	10K	5%	1/16W
R220	1-218-965-11	RES-CHIP	10K	5%	1/16W
R404	1-208-635-11	RES-CHIP	10	5%	1/16W
R405	1-218-937-11	RES-CHIP	47	5%	1/16W
R406	1-218-990-11	SHORT CHIP	0		
R409	1-218-935-11	RES-CHIP	33	5%	1/16W
R412	1-218-937-11	RES-CHIP	47	5%	1/16W
R413	1-218-935-11	RES-CHIP	33	5%	1/16W
R414	1-218-937-11	RES-CHIP	47	5%	1/16W
R415	1-218-937-11	RES-CHIP	47	5%	1/16W
R416	1-218-965-11	RES-CHIP	10K	5%	1/16W
R417	1-218-965-11	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R418	1-218-965-11	RES-CHIP	10K	5%	1/16W
R419	1-218-965-11	RES-CHIP	10K	5%	1/16W
R420	1-218-965-11	RES-CHIP	10K	5%	1/16W
R421	1-218-965-11	RES-CHIP	10K	5%	1/16W
R424	1-218-965-11	RES-CHIP	10K	5%	1/16W
R425	1-218-933-11	RES-CHIP	22	5%	1/16W
R426	1-218-933-11	RES-CHIP	22	5%	1/16W
R427	1-218-965-11	RES-CHIP	10K	5%	1/16W
R428	1-218-965-11	RES-CHIP	10K	5%	1/16W
R429	1-218-935-11	RES-CHIP	33	5%	1/16W
R430	1-218-933-11	RES-CHIP	22	5%	1/16W
R431	1-218-965-11	RES-CHIP	10K	5%	1/16W
R435	1-218-935-11	RES-CHIP	33	5%	1/16W
R436	1-218-935-11	RES-CHIP	33	5%	1/16W
R438	1-218-933-11	RES-CHIP	22	5%	1/16W
R439	1-218-935-11	RES-CHIP	33	5%	1/16W
R440	1-218-945-11	RES-CHIP	220	5%	1/16W
R441	1-218-937-11	RES-CHIP	47	5%	1/16W
R442	1-218-933-11	RES-CHIP	22	5%	1/16W
R443	1-218-935-11	RES-CHIP	33	5%	1/16W
R444	1-218-937-11	RES-CHIP	47	5%	1/16W
R445	1-218-937-11	RES-CHIP	47	5%	1/16W
R446	1-218-937-11	RES-CHIP	47	5%	1/16W
R447	1-218-935-11	RES-CHIP	33	5%	1/16W
R448	1-218-935-11	RES-CHIP	33	5%	1/16W
R449	1-218-937-11	RES-CHIP	47	5%	1/16W
R450	1-218-935-11	RES-CHIP	33	5%	1/16W
R451	1-208-635-11	RES-CHIP	10	5%	1/16W
R452	1-218-935-11	RES-CHIP	33	5%	1/16W
R453	1-218-935-11	RES-CHIP	33	5%	1/16W
R454	1-218-935-11	RES-CHIP	33	5%	1/16W
R455	1-218-935-11	RES-CHIP	33	5%	1/16W
R456	1-218-935-11	RES-CHIP	33	5%	1/16W
R457	1-218-933-11	RES-CHIP	22	5%	1/16W
R458	1-218-933-11	RES-CHIP	22	5%	1/16W
R461	1-218-935-11	RES-CHIP	33	5%	1/16W
R462	1-218-935-11	RES-CHIP	33	5%	1/16W
R463	1-218-937-11	RES-CHIP	47	5%	1/16W
R464	1-218-933-11	RES-CHIP	22	5%	1/16W
R601	1-218-965-11	RES-CHIP	10K	5%	1/16W
R602	1-218-965-11	RES-CHIP	10K	5%	1/16W
R617	1-218-965-11	RES-CHIP	10K	5%	1/16W
R618	1-218-965-11	RES-CHIP	10K	5%	1/16W
R619	1-208-635-11	RES-CHIP	10	5%	1/16W
R620	1-208-635-11	RES-CHIP	10	5%	1/16W
R623	1-218-965-11	RES-CHIP	10K	5%	1/16W
R626	1-208-635-11	RES-CHIP	10	5%	1/16W
R627	1-208-635-11	RES-CHIP	10	5%	1/16W
R628	1-208-635-11	RES-CHIP	10	5%	1/16W
R629	1-208-635-11	RES-CHIP	10	5%	1/16W
R632	1-218-965-11	RES-CHIP	10K	5%	1/16W
R633	1-218-965-11	RES-CHIP	10K	5%	1/16W
R634	1-218-965-11	RES-CHIP	10K	5%	1/16W
R635	1-218-965-11	RES-CHIP	10K	5%	1/16W
R636	1-218-965-11	RES-CHIP	10K	5%	1/16W
R637	1-218-965-11	RES-CHIP	10K	5%	1/16W
R638	1-218-965-11	RES-CHIP	10K	5%	1/16W
R639	1-218-965-11	RES-CHIP	10K	5%	1/16W
R649	1-218-965-11	RES-CHIP	10K	5%	1/16W
R650	1-218-965-11	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R654	1-218-941-81	RES-CHIP	100	5%	1/16W
R655	1-218-941-81	RES-CHIP	100	5%	1/16W
R656	1-218-965-11	RES-CHIP	10K	5%	1/16W
R657	1-218-965-11	RES-CHIP	10K	5%	1/16W
R658	1-218-965-11	RES-CHIP	10K	5%	1/16W
R659	1-218-965-11	RES-CHIP	10K	5%	1/16W
R663	1-218-990-11	SHORT CHIP	0		
R664	1-218-990-11	SHORT CHIP	0		
R669	1-208-635-11	RES-CHIP	10	5%	1/16W
R671	1-208-635-11	RES-CHIP	10	5%	1/16W
R672	1-218-965-11	RES-CHIP	10K	5%	1/16W
R673	1-218-965-11	RES-CHIP	10K	5%	1/16W
R674	1-218-965-11	RES-CHIP	10K	5%	1/16W
R675	1-218-965-11	RES-CHIP	10K	5%	1/16W
R676	1-218-965-11	RES-CHIP	10K	5%	1/16W
R677	1-218-965-11	RES-CHIP	10K	5%	1/16W
R684	1-218-990-11	SHORT CHIP	0		
R686	1-218-990-11	SHORT CHIP	0		
R693	1-218-965-11	RES-CHIP	10K	5%	1/16W
R694	1-218-965-11	RES-CHIP	10K	5%	1/16W
R695	1-218-965-11	RES-CHIP	10K	5%	1/16W
R696	1-218-965-11	RES-CHIP	10K	5%	1/16W
R697	1-218-965-11	RES-CHIP	10K	5%	1/16W
R698	1-218-990-11	SHORT CHIP	0		
R699	1-218-965-11	RES-CHIP	10K	5%	1/16W
R704	1-218-935-11	RES-CHIP	33	5%	1/16W
R705	1-218-935-11	RES-CHIP	33	5%	1/16W
R706	1-218-935-11	RES-CHIP	33	5%	1/16W
R707	1-218-935-11	RES-CHIP	33	5%	1/16W
R708	1-218-935-11	RES-CHIP	33	5%	1/16W
R709	1-218-935-11	RES-CHIP	33	5%	1/16W
R710	1-218-935-11	RES-CHIP	33	5%	1/16W
R711	1-218-935-11	RES-CHIP	33	5%	1/16W
R724	1-218-990-11	SHORT CHIP	0		
R730	1-218-990-11	SHORT CHIP	0		
R731	1-218-965-11	RES-CHIP	10K	5%	1/16W
R732	1-218-965-11	RES-CHIP	10K	5%	1/16W
R735	1-218-935-11	RES-CHIP	33	5%	1/16W
R737	1-218-935-11	RES-CHIP	33	5%	1/16W
R738	1-218-935-11	RES-CHIP	33	5%	1/16W
R740	1-218-935-11	RES-CHIP	33	5%	1/16W
R742	1-218-935-11	RES-CHIP	33	5%	1/16W
R744	1-218-935-11	RES-CHIP	33	5%	1/16W
R745	1-218-935-11	RES-CHIP	33	5%	1/16W
R746	1-218-935-11	RES-CHIP	33	5%	1/16W
R749	1-218-935-11	RES-CHIP	33	5%	1/16W
R750	1-218-935-11	RES-CHIP	33	5%	1/16W
R751	1-218-935-11	RES-CHIP	33	5%	1/16W
R752	1-218-935-11	RES-CHIP	33	5%	1/16W
R753	1-218-935-11	RES-CHIP	33	5%	1/16W
R754	1-218-935-11	RES-CHIP	33	5%	1/16W
R755	1-218-990-11	SHORT CHIP	0		
R756	1-218-990-11	SHORT CHIP	0		
R757	1-218-935-11	RES-CHIP	33	5%	1/16W
R758	1-218-935-11	RES-CHIP	33	5%	1/16W
R759	1-218-935-11	RES-CHIP	33	5%	1/16W
R760	1-218-935-11	RES-CHIP	33	5%	1/16W
R761	1-218-935-11	RES-CHIP	33	5%	1/16W
R763	1-218-935-11	RES-CHIP	33	5%	1/16W
R764	1-218-935-11	RES-CHIP	33	5%	1/16W

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Ref. No.	Part No.	Description			Remarks
R766	1-218-935-11	RES-CHIP	33	5%	1/16W
R768	1-218-935-11	RES-CHIP	33	5%	1/16W
R770	1-218-935-11	RES-CHIP	33	5%	1/16W
R771	1-218-935-11	RES-CHIP	33	5%	1/16W
R773	1-218-935-11	RES-CHIP	33	5%	1/16W
R782	1-218-935-11	RES-CHIP	33	5%	1/16W
R783	1-218-935-11	RES-CHIP	33	5%	1/16W
R784	1-218-935-11	RES-CHIP	33	5%	1/16W
R785	1-218-935-11	RES-CHIP	33	5%	1/16W
R786	1-218-935-11	RES-CHIP	33	5%	1/16W
R787	1-218-935-11	RES-CHIP	33	5%	1/16W
R788	1-218-935-11	RES-CHIP	33	5%	1/16W
R789	1-218-935-11	RES-CHIP	33	5%	1/16W
R790	1-218-935-11	RES-CHIP	33	5%	1/16W
R791	1-218-935-11	RES-CHIP	33	5%	1/16W
R792	1-218-935-11	RES-CHIP	33	5%	1/16W
R793	1-218-935-11	RES-CHIP	33	5%	1/16W
R794	1-218-935-11	RES-CHIP	33	5%	1/16W
R795	1-218-935-11	RES-CHIP	33	5%	1/16W
R796	1-218-935-11	RES-CHIP	33	5%	1/16W
R797	1-218-935-11	RES-CHIP	33	5%	1/16W
R798	1-218-935-11	RES-CHIP	33	5%	1/16W
R799	1-218-935-11	RES-CHIP	33	5%	1/16W
R901	1-218-973-11	RES-CHIP	47K	5%	1/16W
R905	1-218-935-11	RES-CHIP	33	5%	1/16W
R906	1-218-935-11	RES-CHIP	33	5%	1/16W
R907	1-218-937-11	RES-CHIP	47	5%	1/16W
R908	1-218-937-11	RES-CHIP	47	5%	1/16W
R909	1-218-990-11	SHORT CHIP	0		
R910	1-218-990-11	SHORT CHIP	0		
R911	1-218-990-11	SHORT CHIP	0		
R912	1-218-965-11	RES-CHIP	10K	5%	1/16W
R913	1-218-965-11	RES-CHIP	10K	5%	1/16W
R914	1-218-937-11	RES-CHIP	47	5%	1/16W
R915	1-218-965-11	RES-CHIP	10K	5%	1/16W
R916	1-218-990-11	SHORT CHIP	0		
R917	1-218-990-11	SHORT CHIP	0		
R922	1-218-990-11	SHORT CHIP	0		
R923	1-218-990-11	SHORT CHIP	0		
R924	1-218-990-11	SHORT CHIP	0		
R925	1-218-935-11	RES-CHIP	33	5%	1/16W
R926	1-218-990-11	SHORT CHIP	0		
R927	1-218-990-11	SHORT CHIP	0		
R928	1-218-965-11	RES-CHIP	10K	5%	1/16W
R929	1-218-990-11	SHORT CHIP	0		
R930	1-218-937-11	RES-CHIP	47	5%	1/16W
R931	1-218-937-11	RES-CHIP	47	5%	1/16W
R932	1-218-965-11	RES-CHIP	10K	5%	1/16W
R933	1-218-965-11	RES-CHIP	10K	5%	1/16W
R935	1-218-965-11	RES-CHIP	10K	5%	1/16W
R936	1-218-965-11	RES-CHIP	10K	5%	1/16W
R945	1-218-965-11	RES-CHIP	10K	5%	1/16W
R946	1-218-990-11	SHORT CHIP	0		
R947	1-218-935-11	RES-CHIP	33	5%	1/16W
R948	1-218-935-11	RES-CHIP	33	5%	1/16W
R949	1-218-935-11	RES-CHIP	33	5%	1/16W
R952	1-218-990-11	SHORT CHIP	0		
R953	1-218-990-11	SHORT CHIP	0		
R954	1-218-990-11	SHORT CHIP	0		
R955	1-218-965-11	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R956	1-218-935-11	RES-CHIP	33	5%	1/16W
R957	1-218-935-11	RES-CHIP	33	5%	1/16W
R958	1-218-937-11	RES-CHIP	47	5%	1/16W
R959	1-218-990-11	SHORT CHIP	0		
R960	1-218-990-11	SHORT CHIP	0		
R961	1-218-990-11	SHORT CHIP	0		
R1001	1-218-935-11	RES-CHIP	33	5%	1/16W
R1007	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1008	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1009	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1010	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1011	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1012	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1013	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1019	1-218-990-11	SHORT CHIP	0		
R1020	1-218-990-11	SHORT CHIP	0		
R1027	1-218-990-11	SHORT CHIP	0		
R1028	1-218-935-11	RES-CHIP	33	5%	1/16W
R1029	1-218-935-11	RES-CHIP	33	5%	1/16W
R1030	1-218-935-11	RES-CHIP	33	5%	1/16W
R1031	1-218-935-11	RES-CHIP	33	5%	1/16W
R1033	1-218-990-11	SHORT CHIP	0		
R1040	1-218-990-11	SHORT CHIP	0		
R1041	1-218-990-11	SHORT CHIP	0		
R1042	1-218-990-11	SHORT CHIP	0		
R1043	1-218-990-11	SHORT CHIP	0		
R1044	1-218-990-11	SHORT CHIP	0		
R1046	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1048	1-218-990-11	SHORT CHIP	0		
R1055	1-216-864-11	METAL CHIP	0	5%	1/16W
R1056	1-216-864-11	METAL CHIP	0	5%	1/16W
R1108	1-218-990-11	SHORT CHIP	0		
R1109	1-218-990-11	SHORT CHIP	0		
R1110	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1122	1-218-990-11	SHORT CHIP	0		
R1127	1-218-935-11	RES-CHIP	33	5%	1/16W
R1128	1-218-933-11	RES-CHIP	22	5%	1/16W
R1129	1-218-990-11	SHORT CHIP	0		
R1130	1-218-933-11	RES-CHIP	22	5%	1/16W
R1131	1-218-990-11	SHORT CHIP	0		
R1144	1-218-990-11	SHORT CHIP	0		
R1150	1-218-990-11	SHORT CHIP	0		
R1151	1-218-990-11	SHORT CHIP	0		
R1153	1-218-990-11	SHORT CHIP	0		
R1154	1-218-990-11	SHORT CHIP	0		
R1155	1-218-990-11	SHORT CHIP	0		
R1156	1-218-990-11	SHORT CHIP	0		
R1157	1-218-990-11	SHORT CHIP	0		
R1158	1-218-990-11	SHORT CHIP	0		
R1159	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1167	1-218-990-11	SHORT CHIP	0		
R1168	1-208-635-11	RES-CHIP	10	5%	1/16W
R1169	1-218-990-11	SHORT CHIP	0		
R1170	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1171	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R1172	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1173	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R1193	1-218-935-11	RES-CHIP	33	5%	1/16W
R1201	1-218-933-11	RES-CHIP	22	5%	1/16W
R1203	1-218-935-11	RES-CHIP	33	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R1205	1-218-941-81	RES-CHIP	100	5%	1/16W
R1208	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R1209	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1212	1-218-935-11	RES-CHIP	33	5%	1/16W
R1213	1-218-935-11	RES-CHIP	33	5%	1/16W
R1214	1-218-945-11	RES-CHIP	220	5%	1/16W
R1215	1-218-945-11	RES-CHIP	220	5%	1/16W
R1216	1-218-945-11	RES-CHIP	220	5%	1/16W
R1217	1-218-945-11	RES-CHIP	220	5%	1/16W
R1218	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1219	1-218-945-11	RES-CHIP	220	5%	1/16W
R1220	1-218-945-11	RES-CHIP	220	5%	1/16W
R1222	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R1224	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R1225	1-218-935-11	RES-CHIP	33	5%	1/16W
R1233	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1235	1-208-635-11	RES-CHIP	10	5%	1/16W
R1236	1-218-935-11	RES-CHIP	33	5%	1/16W
R1237	1-218-935-11	RES-CHIP	33	5%	1/16W
R1238	1-218-933-11	RES-CHIP	22	5%	1/16W
R1239	1-218-935-11	RES-CHIP	33	5%	1/16W
R1241	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1242	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1243	1-218-935-11	RES-CHIP	33	5%	1/16W
R1245	1-218-935-11	RES-CHIP	33	5%	1/16W
R1246	1-218-935-11	RES-CHIP	33	5%	1/16W
R1247	1-218-935-11	RES-CHIP	33	5%	1/16W
R1256	1-216-864-11	METAL CHIP	0	5%	1/16W
R1301	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1302	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1306	1-218-941-81	RES-CHIP	100	5%	1/16W
R1328	1-218-935-11	RES-CHIP	33	5%	1/16W
R1329	1-218-935-11	RES-CHIP	33	5%	1/16W
R1330	1-218-935-11	RES-CHIP	33	5%	1/16W
R1331	1-218-935-11	RES-CHIP	33	5%	1/16W
R1332	1-218-935-11	RES-CHIP	33	5%	1/16W
R1333	1-218-935-11	RES-CHIP	33	5%	1/16W
R1334	1-218-935-11	RES-CHIP	33	5%	1/16W
R1335	1-218-935-11	RES-CHIP	33	5%	1/16W
R1402	1-220-174-11	RES-CHIP	200	5%	1/16W
R1404	1-218-990-11	SHORT CHIP	0		
R1405	1-218-990-11	SHORT CHIP	0		
R1406	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1407	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1408	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1409	1-218-990-11	SHORT CHIP	0		
R1410	1-218-990-11	SHORT CHIP	0		
R1411	1-218-990-11	SHORT CHIP	0		
R1412	1-218-935-11	RES-CHIP	33	5%	1/16W
R1413	1-218-935-11	RES-CHIP	33	5%	1/16W
R1414	1-218-935-11	RES-CHIP	33	5%	1/16W
R1415	1-218-935-11	RES-CHIP	33	5%	1/16W
R1416	1-218-935-11	RES-CHIP	33	5%	1/16W
R1417	1-218-935-11	RES-CHIP	33	5%	1/16W
R1418	1-218-935-11	RES-CHIP	33	5%	1/16W
R1419	1-218-935-11	RES-CHIP	33	5%	1/16W
R1420	1-218-935-11	RES-CHIP	33	5%	1/16W
R1422	1-218-990-11	SHORT CHIP	0		
R1426	1-218-990-11	SHORT CHIP	0		
R1427	1-218-965-11	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R1428	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1429	1-218-937-11	RES-CHIP	47	5%	1/16W
R1432	1-218-935-11	RES-CHIP	33	5%	1/16W
R1438	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1440	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1442	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1444	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1446	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1448	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1450	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1452	1-218-990-11	SHORT CHIP	0		
R1453	1-218-933-11	RES-CHIP	22	5%	1/16W
R1454	1-218-990-11	SHORT CHIP	0		
R1458	1-218-990-11	SHORT CHIP	0		
R1459	1-216-296-11	SHORT CHIP	0		
R1460	1-218-990-11	SHORT CHIP	0		
R1461	1-216-296-11	SHORT CHIP	0		
R1462	1-218-990-11	SHORT CHIP	0		
R1468	1-218-935-11	RES-CHIP	33	5%	1/16W
R1469	1-218-935-11	RES-CHIP	33	5%	1/16W
R1470	1-218-935-11	RES-CHIP	33	5%	1/16W
R1471	1-218-935-11	RES-CHIP	33	5%	1/16W
R1472	1-218-935-11	RES-CHIP	33	5%	1/16W
R1473	1-218-935-11	RES-CHIP	33	5%	1/16W
R1474	1-218-935-11	RES-CHIP	33	5%	1/16W
R1475	1-218-935-11	RES-CHIP	33	5%	1/16W
R1476	1-218-990-11	SHORT CHIP	0		
R1477	1-218-990-11	SHORT CHIP	0		
R1478	1-218-990-11	SHORT CHIP	0		
R1482	1-216-296-11	SHORT CHIP	0		
R1611	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1631	1-218-935-11	RES-CHIP	33	5%	1/16W
R1632	1-218-937-11	RES-CHIP	47	5%	1/16W
R1633	1-218-952-11	RES-CHIP	820	5%	1/16W
R1643	1-218-933-11	RES-CHIP	22	5%	1/16W
R1644	1-208-635-11	RES-CHIP	10	5%	1/16W
R1645	1-208-635-11	RES-CHIP	10	5%	1/16W
R1646	1-208-635-11	RES-CHIP	10	5%	1/16W
R1651	1-218-941-81	RES-CHIP	100	5%	1/16W
R1655	1-218-938-11	RES-CHIP	56	5%	1/16W
R1660	1-218-938-11	RES-CHIP	56	5%	1/16W
R1675	1-218-990-11	SHORT CHIP	0		
R1685	1-218-937-11	RES-CHIP	47	5%	1/16W
R1688	1-218-938-11	RES-CHIP	56	5%	1/16W
R1701	1-216-295-91	SHORT CHIP	0		
R1702	1-216-295-91	SHORT CHIP	0		
R1703	1-216-295-91	SHORT CHIP	0		
R1704	1-216-295-91	SHORT CHIP	0		
R1705	1-216-295-91	SHORT CHIP	0		
R1706	1-216-295-91	SHORT CHIP	0		
R1707	1-216-295-91	SHORT CHIP	0		
R1712	1-216-296-11	SHORT CHIP	0		
R1713	1-216-296-11	SHORT CHIP	0		
R1718	1-216-295-91	SHORT CHIP	0		
R1719	1-216-295-91	SHORT CHIP	0		
R1720	1-218-990-11	SHORT CHIP	0		
R1721	1-218-990-11	SHORT CHIP	0		
R1722	1-216-296-11	SHORT CHIP	0		
R1726	1-216-296-11	SHORT CHIP	0		
R1727	1-216-296-11	SHORT CHIP	0		

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Ref. No.	Part No.	Description			Remarks
R1728	1-216-295-91	SHORT CHIP	0		
R1729	1-216-295-91	SHORT CHIP	0		
R1730	1-216-295-91	SHORT CHIP	0		
R1732	1-216-295-91	SHORT CHIP	0		
R1733	1-218-990-11	SHORT CHIP	0		
R1734	1-216-295-91	SHORT CHIP	0		
R1735	1-216-295-91	SHORT CHIP	0		
R1736	1-216-295-91	SHORT CHIP	0		
R1826	1-218-990-11	SHORT CHIP	0		
R1837	1-216-296-11	SHORT CHIP	0		
R1839	1-216-295-91	SHORT CHIP	0		
R2003	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2004	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2005	1-218-941-81	RES-CHIP	100	5%	1/16W
R2006	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2007	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2008	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2009	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2010	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2011	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2013	1-208-910-11	METAL CHIP	9.1K	0.5%	1/16W
R2016	1-216-864-11	METAL CHIP	0	5%	1/16W
R2019	1-218-938-11	METAL CHIP	56	0.5%	1/16W
R2021	1-218-938-11	METAL CHIP	56	0.5%	1/16W
R2031	1-218-938-11	METAL CHIP	56	0.5%	1/16W
R2033	1-218-938-11	METAL CHIP	56	0.5%	1/16W
R2034	1-218-864-11	METAL CHIP	5.1K	0.5%	1/16W
R2102	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2103	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2104	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2105	1-218-990-11	SHORT CHIP	0		
R2106	1-218-935-11	RES-CHIP	33	5%	1/16W
R2107	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2108	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2110	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2111	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2112	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2113	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2114	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2115	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2116	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2117	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2118	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2119	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2120	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2121	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R2122	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R2123	1-218-990-11	SHORT CHIP	0		
R2124	1-218-941-81	RES-CHIP	100	5%	1/16W
R2126	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2127	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R2128	1-216-841-11	METAL CHIP	47K	5%	1/16W
R2129	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2130	1-216-841-11	METAL CHIP	47K	5%	1/16W
R2132	1-218-935-11	RES-CHIP	33	5%	1/16W
R2133	1-218-935-11	RES-CHIP	33	5%	1/16W
R2134	1-218-935-11	RES-CHIP	33	5%	1/16W
R2135	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2136	1-218-935-11	RES-CHIP	33	5%	1/16W
R2137	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2138	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2139	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2140	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2141	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2142	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2143	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2144	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2145	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2146	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2148	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2149	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2150	1-218-990-11	SHORT CHIP	0		
R2151	1-218-937-11	RES-CHIP	47	5%	1/16W
R2152	1-218-990-11	SHORT CHIP	0		
R2153	1-218-990-11	SHORT CHIP	0		
R2154	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2158	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2159	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2160	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2161	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2162	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2163	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2165	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2166	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2169	1-216-168-00	RES-CHIP	56	5%	1/8W
R2171	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2172	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2174	1-218-990-11	SHORT CHIP	0		
R2175	1-218-990-11	SHORT CHIP	0		
R2176	1-218-990-11	SHORT CHIP	0		
R2177	1-216-810-11	METAL CHIP	120	5%	1/16W
R2181	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R2182	1-208-950-81	METAL CHIP	430K	0.5%	1/16W
R2183	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R2190	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2191	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2192	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2193	1-218-935-11	RES-CHIP	33	5%	1/16W
R2196	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2201	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2202	1-216-296-11	SHORT CHIP	0		
R2205	1-216-296-11	SHORT CHIP	0		
R2206	1-216-296-11	SHORT CHIP	0		
R2208	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2209	1-218-941-81	RES-CHIP	100	5%	1/16W
R2211	1-218-941-81	RES-CHIP	100	5%	1/16W
R2214	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2219	1-218-932-11	RES-CHIP	18	5%	1/16W
R2220	1-218-932-11	RES-CHIP	18	5%	1/16W
R2221	1-218-933-11	RES-CHIP	22	5%	1/16W
R2222	1-218-933-11	RES-CHIP	22	5%	1/16W
R2223	1-218-933-11	RES-CHIP	22	5%	1/16W
R2224	1-218-932-11	RES-CHIP	18	5%	1/16W
R2225	1-218-932-11	RES-CHIP	18	5%	1/16W
R2226	1-218-932-11	RES-CHIP	18	5%	1/16W
R2227	1-218-932-11	RES-CHIP	18	5%	1/16W
R2228	1-218-932-11	RES-CHIP	18	5%	1/16W
R2229	1-218-932-11	RES-CHIP	18	5%	1/16W
R2231	1-216-864-11	METAL CHIP	0	5%	1/16W
R2232	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R2242	1-218-933-11	RES-CHIP	22	5%	1/16W
R2243	1-218-933-11	RES-CHIP	22	5%	1/16W
R2244	1-218-933-11	RES-CHIP	22	5%	1/16W
R2245	1-218-933-11	RES-CHIP	22	5%	1/16W
R2307	1-218-990-11	SHORT CHIP	0		
R2308	1-218-990-11	SHORT CHIP	0		
R2309	1-218-990-11	SHORT CHIP	0		
R2310	1-218-990-11	SHORT CHIP	0		
R2311	1-218-990-11	SHORT CHIP	0		
R2312	1-218-990-11	SHORT CHIP	0		
R2314	1-218-990-11	SHORT CHIP	0		
R2316	1-218-990-11	SHORT CHIP	0		
R2318	1-218-990-11	SHORT CHIP	0		
R2320	1-218-990-11	SHORT CHIP	0		
R2322	1-218-990-11	SHORT CHIP	0		
R2324	1-218-990-11	SHORT CHIP	0		
R2326	1-218-990-11	SHORT CHIP	0		
R2328	1-218-990-11	SHORT CHIP	0		
R2329	1-218-990-11	SHORT CHIP	0		
R2332	1-218-990-11	SHORT CHIP	0		
R2334	1-218-990-11	SHORT CHIP	0		
R2336	1-218-990-11	SHORT CHIP	0		
R2337	1-218-990-11	SHORT CHIP	0		
R2338	1-218-990-11	SHORT CHIP	0		
R2350	1-218-941-81	RES-CHIP	100	5%	1/16W
R2352	1-218-941-81	RES-CHIP	100	5%	1/16W
R2360	1-218-951-11	RES-CHIP	680	5%	1/16W
R2361	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2362	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R2363	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R2364	1-218-941-81	RES-CHIP	100	5%	1/16W
R2365	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R2366	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R2367	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R2368	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R2369	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R2370	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R2371	1-218-933-11	RES-CHIP	22	5%	1/16W
R2372	1-218-933-11	RES-CHIP	22	5%	1/16W
R2373	1-218-933-11	RES-CHIP	22	5%	1/16W
R2374	1-218-933-11	RES-CHIP	22	5%	1/16W
R2375	1-218-933-11	RES-CHIP	22	5%	1/16W
R2376	1-218-933-11	RES-CHIP	22	5%	1/16W
R2377	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2378	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2379	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2380	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2381	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2382	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2390	1-218-990-11	SHORT CHIP	0		
R2391	1-218-990-11	SHORT CHIP	0		
R2392	1-218-990-11	SHORT CHIP	0		
R2393	1-218-990-11	SHORT CHIP	0		
R2394	1-218-990-11	SHORT CHIP	0		
R2395	1-218-990-11	SHORT CHIP	0		
R2396	1-218-990-11	SHORT CHIP	0		
R2397	1-218-990-11	SHORT CHIP	0		
R2398	1-218-990-11	SHORT CHIP	0		
R2400	1-218-990-11	SHORT CHIP	0		
R2411	1-218-990-11	SHORT CHIP	0		
R2412	1-218-990-11	SHORT CHIP	0		
R2424	1-218-990-11	SHORT CHIP	0		
R2425	1-218-990-11	SHORT CHIP	0		
R2433	1-218-990-11	SHORT CHIP	0		
R2434	1-218-990-11	SHORT CHIP	0		
R2441	1-218-990-11	SHORT CHIP	0		
R2442	1-218-990-11	SHORT CHIP	0		
R2449	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2454	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2455	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2456	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2460	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2468	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2469	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2470	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2471	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2472	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2473	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2474	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2485	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2503	1-216-864-11	METAL CHIP	0	5%	1/16W
R2508	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2509	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2511	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R2512	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R2513	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2514	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2515	1-218-941-81	RES-CHIP	100	5%	1/16W
R2517	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R2520	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2521	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2522	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2523	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2525	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2526	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2528	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2530	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2531	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2533	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2536	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2539	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2542	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2543	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2544	1-208-635-11	RES-CHIP	10	5%	1/16W
R2545	1-208-635-11	RES-CHIP	10	5%	1/16W
R2549	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2550	1-208-635-11	RES-CHIP	10	5%	1/16W
R2551	1-218-990-11	SHORT CHIP	0		
R2552	1-218-990-11	SHORT CHIP	0		
R2553	1-218-990-11	SHORT CHIP	0		
R2558	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2561	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2562	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2563	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2564	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2565	1-208-635-11	RES-CHIP	10	5%	1/16W
R2566	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2569	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2609	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2613	1-218-935-11	RES-CHIP	33	5%	1/16W

RD-045

Ref. No.	Part No.	Description			Remarks
R2618	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3101	1-218-935-11	RES-CHIP	33	5%	1/16W
R3102	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3103	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3106	1-218-990-11	SHORT CHIP	0		
R3107	1-218-990-11	SHORT CHIP	0		
R3112	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3113	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3114	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3120	1-218-990-11	SHORT CHIP	0		
R3121	1-218-990-11	SHORT CHIP	0		
R3124	1-218-990-11	SHORT CHIP	0		
R3125	1-218-990-11	SHORT CHIP	0		
R3132	1-218-990-11	SHORT CHIP	0		
R3134	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3137	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3140	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3141	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3143	1-218-990-11	SHORT CHIP	0		
R3144	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3145	1-218-941-81	RES-CHIP	100	5%	1/16W
R3146	1-218-941-81	RES-CHIP	100	5%	1/16W
R3147	1-218-941-81	RES-CHIP	100	5%	1/16W
R3148	1-218-941-81	RES-CHIP	100	5%	1/16W
R3150	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3601	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3602	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3604	1-218-990-11	SHORT CHIP	0		
R3605	1-216-864-11	METAL CHIP	0	5%	1/16W
R3608	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3701	1-218-935-11	RES-CHIP	33	5%	1/16W
R3702	1-218-935-11	RES-CHIP	33	5%	1/16W
R3703	1-218-935-11	RES-CHIP	33	5%	1/16W
R3704	1-218-935-11	RES-CHIP	33	5%	1/16W
R3705	1-218-935-11	RES-CHIP	33	5%	1/16W
R3706	1-218-935-11	RES-CHIP	33	5%	1/16W
R3707	1-218-935-11	RES-CHIP	33	5%	1/16W
R3713	1-218-990-11	SHORT CHIP	0		
R3714	1-218-935-11	RES-CHIP	33	5%	1/16W
R3715	1-218-935-11	RES-CHIP	33	5%	1/16W
R3716	1-218-935-11	RES-CHIP	33	5%	1/16W
R3729	1-218-935-11	RES-CHIP	33	5%	1/16W
R3730	1-218-945-11	RES-CHIP	220	5%	1/16W
R3758	1-218-933-11	RES-CHIP	22	5%	1/16W
R3759	1-218-990-11	SHORT CHIP	0		
R3766	1-218-937-11	RES-CHIP	47	5%	1/16W
R3777	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3778	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3782	1-218-935-11	RES-CHIP	33	5%	1/16W
R3784	1-208-635-11	RES-CHIP	10	5%	1/16W
R3787	1-218-990-11	SHORT CHIP	0		
R3789	1-216-864-11	METAL CHIP	0	5%	1/16W
R4104	1-218-940-11	RES-CHIP	82	5%	1/16W
R4130	1-218-935-11	RES-CHIP	33	5%	1/16W
R4132	1-218-940-11	RES-CHIP	82	5%	1/16W
R4133	1-218-933-11	RES-CHIP	22	5%	1/16W
R4134	1-218-940-11	RES-CHIP	82	5%	1/16W
R4135	1-218-933-11	RES-CHIP	22	5%	1/16W
R4136	1-218-933-11	RES-CHIP	22	5%	1/16W
R4137	1-218-940-11	RES-CHIP	82	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R4151	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4156	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4163	1-218-990-11	SHORT CHIP	0		
R4164	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4165	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4166	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4168	1-216-296-11	SHORT CHIP	0		
R4169	1-216-296-11	SHORT CHIP	0		
R4610	1-218-938-11	RES-CHIP	56	5%	1/16W
R5107	1-208-635-11	RES-CHIP	10	5%	1/16W
R5108	1-218-935-11	RES-CHIP	33	5%	1/16W
R5110	1-208-635-11	RES-CHIP	10	5%	1/16W
R5111	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R5112	1-218-990-11	SHORT CHIP	0		
R5121	1-218-935-11	RES-CHIP	33	5%	1/16W
R5122	1-218-935-11	RES-CHIP	33	5%	1/16W
R5123	1-218-935-11	RES-CHIP	33	5%	1/16W
R5301	1-216-295-91	SHORT CHIP	0		
R5302	1-216-295-91	SHORT CHIP	0		
R5704	1-218-990-11	SHORT CHIP	0		
R5706	1-218-935-11	RES-CHIP	33	5%	1/16W
R5707	1-218-939-11	RES-CHIP	68	5%	1/16W
R5759	1-218-941-81	RES-CHIP	100	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB101	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB102	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB103	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB104	1-233-270-11	NETWORK, RES (8 GANG) 10K			
RB105	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB107	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB109	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB110	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB111	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB113	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB114	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB116	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB117	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB118	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB119	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB120	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB403	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB404	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB405	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB406	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB407	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB408	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB409	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB411	1-233-270-11	NETWORK, RES (8 GANG) 10K			
RB413	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB414	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB415	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB416	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB417	1-233-270-11	NETWORK, RES (8 GANG) 10K			
RB418	1-233-270-11	NETWORK, RES (8 GANG) 10K			
RB419	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB420	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB421	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB422	1-242-963-21	RES, NETWORK 33X4		(1005)	
RB423	1-242-963-21	RES, NETWORK 33X4		(1005)	

Ref. No.	Part No.	Description		Remarks
RB424	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB425	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB426	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB427	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB428	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB429	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB430	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB431	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB432	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB433	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB434	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB435	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB436	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB601	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB602	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB603	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB604	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB606	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB607	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB608	1-234-369-21	RES, NETWORK 10X4	(1005)	
RB609	1-234-369-21	RES, NETWORK 10X4	(1005)	
RB610	1-234-369-21	RES, NETWORK 10X4	(1005)	
RB611	1-234-369-21	RES, NETWORK 10X4	(1005)	
RB612	1-234-400-21	CONDUCTOR, NETWORK	(2010)	
RB613	1-234-400-21	CONDUCTOR, NETWORK	(2010)	
RB801	1-234-400-21	CONDUCTOR, NETWORK	(2010)	
RB802	1-234-400-21	CONDUCTOR, NETWORK	(2010)	
RB901	1-234-377-21	RES, NETWORK 4.7KX4	(1005)	
RB902	1-234-400-21	CONDUCTOR, NETWORK	(2010)	
RB903	1-234-400-21	CONDUCTOR, NETWORK	(2010)	
RB904	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB905	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB1005	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB1006	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB1111	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB1112	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB1113	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB1114	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB1115	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB1201	1-234-370-21	RES, NETWORK 22X4	(1005)	
RB1202	1-234-370-21	RES, NETWORK 22X4	(1005)	
RB1501	1-234-400-21	CONDUCTOR, NETWORK	(2010)	
RB1502	1-234-400-21	CONDUCTOR, NETWORK	(2010)	
RB2101	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB2102	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB2103	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB2104	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB2105	1-233-270-11	NETWORK, RES (8 GANG) 10K		
RB2106	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB2107	1-242-963-21	RES, NETWORK 33X4	(1005)	
RB2201	1-234-370-21	RES, NETWORK 22X4	(1005)	
RB2202	1-234-370-21	RES, NETWORK 22X4	(1005)	
RB2501	1-233-270-11	NETWORK, RES (8 GANG) 10K		
		< VARIABLE RESISTOR >		
RV2301	1-223-583-11	RES, ADJ, CARBON 1K		
RV2302	1-223-583-11	RES, ADJ, CARBON 1K		
		< THERMISTOR >		
TH1901	1-803-384-11	THERMISTOR (1608)		

Ref. No.	Part No.	Description				Remarks
		< VIBRATOR >				
X101	1-795-885-21	VIBRATOR, CRYSTAL (SMD)				
X1601	1-781-867-21	VIBRATOR, CRYSTAL				
X2001	1-795-886-21	VIBRATOR, CRYSTAL (SMD)				
X2201	1-795-886-21	VIBRATOR, CRYSTAL (SMD)				

Ref. No.	Part No.	Description				Remarks
*	A-6061-348-A	TX-001 (E) BOARD, COMPLETE **************************				
		< CAPACITOR >				
C1000	1-126-947-11	ELECT	47uF	20.00%	16V	
C1001	1-126-964-11	ELECT	10uF	20.00%	50V	
C1002	1-126-947-11	ELECT	47uF	20.00%	16V	
C1003	1-126-947-11	ELECT	47uF	20.00%	16V	
C1004	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V	
C1005	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C1006	1-163-255-11	CERAMIC CHIP	150PF	5.00%	50V	
C1007	1-107-725-11	CERAMIC CHIP	0.1uF	10.00%	16V	
C1009	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V	
C1010	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V	
C1011	1-126-947-11	ELECT	47uF	20.00%	16V	
C1012	1-126-947-11	ELECT	47uF	20.00%	16V	
C1013	1-163-031-91	CERAMIC CHIP	0.01uF		50V	
C1014	1-163-031-91	CERAMIC CHIP	0.01uF		50V	
C1015	1-163-031-91	CERAMIC CHIP	0.01uF		50V	
C1016	1-163-031-91	CERAMIC CHIP	0.01uF		50V	
C1017	1-163-031-91	CERAMIC CHIP	0.01uF		50V	
C1018	1-163-235-11	CERAMIC CHIP	22PF	5.00%	50V	
C1019	1-163-235-11	CERAMIC CHIP	22PF	5.00%	50V	
C1020	1-163-031-91	CERAMIC CHIP	0.01uF		50V	
C1050	1-163-031-91	CERAMIC CHIP	0.01uF		50V	
		< IC >				
IC1000	8-759-837-19	IC MM1562FFBE				
IC1001	6-802-712-01	IC SDA555XFL				
		< JUMPER RESISTOR >				
JR1000	1-216-296-11	SHORT CHIP	0			
JR1003	1-216-296-11	SHORT CHIP	0			
JR1004	1-216-296-11	SHORT CHIP	0			
JR1005	1-216-296-11	SHORT CHIP	0			
JR1006	1-216-296-11	SHORT CHIP	0			
JR1007	1-216-296-11	SHORT CHIP	0			
JR1008	1-216-296-11	SHORT CHIP	0			
JR1011	1-216-296-11	SHORT CHIP	0			
JR1012	1-216-296-11	SHORT CHIP	0			
JR1013	1-216-295-91	SHORT CHIP	0			
JR1014	1-216-296-11	SHORT CHIP	0			
JR1015	1-216-296-11	SHORT CHIP	0			
JR1018	1-216-296-11	SHORT CHIP	0			
JR1021	1-216-295-91	SHORT CHIP	0			
JR1022	1-216-296-11	SHORT CHIP	0			
JR1023	1-216-295-91	SHORT CHIP	0			
JR1024	1-216-296-11	SHORT CHIP	0			
JR1025	1-216-296-11	SHORT CHIP	0			
JR1026	1-216-296-11	SHORT CHIP	0			
JR1027	1-216-296-11	SHORT CHIP	0			

TX-001 POWER SUPPLY BLOCK

Ref. No.	Part No.	Description				Remarks
JR1028	1-216-296-11	SHORT CHIP	0			
JR1029	1-216-296-11	SHORT CHIP	0			
JR1030	1-216-296-11	SHORT CHIP	0			
JR1031	1-216-296-11	SHORT CHIP	0			
JR1032	1-216-296-11	SHORT CHIP	0			
JR1033	1-216-296-11	SHORT CHIP	0			
JR1035	1-216-296-11	SHORT CHIP	0			
JR1036	1-216-296-11	SHORT CHIP	0			
		< COIL >				
L1000	1-414-183-41	INDUCTOR	10uH			
L1001	1-414-183-41	INDUCTOR	10uH			
L1002	1-412-950-11	INDUCTOR	8.2uH			
L1003	1-414-183-41	INDUCTOR	10uH			
L1004	1-414-183-41	INDUCTOR	10uH			
		< TRANSISTOR >				
Q1000	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX			
Q1001	8-719-012-57	TRANSISTOR	2SK1399-T1B			
Q1002	8-719-012-57	TRANSISTOR	2SK1399-T1B			
Q1003	8-719-012-57	TRANSISTOR	2SK1399-T1B			
Q1004	8-729-216-22	TRANSISTOR	2SA812-T1-M5M6			
Q1005	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX			
		< RESISTOR >				
R1002	1-216-295-91	SHORT CHIP	0			
R1004	1-216-085-91	RES-CHIP	33K	5%	1/10W	
R1005	1-216-085-91	RES-CHIP	33K	5%	1/10W	
R1006	1-216-025-11	RES-CHIP	100	5%	1/10W	
R1007	1-216-041-00	METAL CHIP	470	5%	1/10W	
R1008	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	
R1009	1-216-037-00	METAL CHIP	330	5%	1/10W	
R1010	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R1011	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	
R1012	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	
R1013	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	
R1014	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	
R1019	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	
R1020	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R1021	1-216-077-91	RES-CHIP	15K	5%	1/10W	
R1022	1-216-047-91	RES-CHIP	820	5%	1/10W	
R1023	1-216-047-91	RES-CHIP	820	5%	1/10W	
R1024	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
		< VIBRATOR >				
X1000	1-795-884-11	VIBRATOR, CRYSTAL				

Ref. No.	Part No.	Description				Remarks
⚠	1-468-747-11	POWER SUPPLY BLOCK *******************				
		< CAPACITOR >				
⚠C101	1-165-538-11	FILM	0.1u			
⚠C102	1-165-538-11	FILM	0.1u			
⚠C103	1-113-898-51	CERAMIC	330p			
⚠C104	1-113-898-51	CERAMIC	330p			
⚠C105	1-113-903-51	CERAMIC	1000p			
⚠C107	1-S02-168-11	ERECT	330u	400V		
⚠C150	1-165-538-11	FILM	0.1u			
		< CONNECTOR >				
⚠CN101	1-251-134-11	AC INLET				
		< TERMINAL >				
⚠ET101	1-537-770-21	EARTH TERMINAL				
		< FUSE >				
⚠F101	1-533-470-11	FUSE	T1.25A/250V			
		< LINE FILTER >				
⚠LF101	1-415-785-11	LINE FILTER				
⚠LF102	1-415-785-11	LINE FILTER				
		< PHOTO COUPLER >				
⚠PH101	8-749-018-06	PHOTO COUPLER		TLP421		
⚠PH103	8-749-924-35	PHOTO COUPLER		ON3171-R		
		< TRANSFORMER >				
⚠T101	1-S02-169-11	“TRANSFORMER,CONVERTER”				
⚠R102	1-216-270-91	METAL	1M	5%	1/8W	
⚠R103	1-216-270-91	METAL	1M	5%	1/8W	
		< VARISTOR >				
⚠VDR101	1-809-267-51	VARISTOR	ERZV10D471			

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES & PACKING MATERIALS *******************************	
	1-477-804-11	REMOTE COMMANDER (RMT-D203P)	
	3-071-119-81	BATTERY COVER (FOR RMT-D203P)	
⚠	1-575-131-82	CORD, POWER (AEP)	
	1-696-593-11	CORD, CONNECTION	
⚠	1-751-115-44	CORD, POWER (UK)	
	1-827-026-11	CORD, CONNECTION	
	3-081-195-11	MANUAL,INSTRUCTION(OPERATIONS) (ENGLISH)(UK)	
	3-081-195-21	MANUAL,INSTRUCTION(OPERATIONS) (FRENCH)(AEP)	
	3-081-195-31	MANUAL,INSTRUCTION(OPERATIONS) (GERMAN)(AEP)	
	3-081-195-41	MANUAL,INSTRUCTION(OPERATIONS) (SPANISH)(AEP)	
	3-081-195-51	MANUAL,INSTRUCTION(OPERATIONS) (ITALIAN)(AEP)	
	3-081-195-61	MANUAL,INSTRUCTION(OPERATIONS) (DUTCH)(AEP)	
	3-081-196-11	MANUAL, INSTRUCTION (HOOKUPS) (ENGLISH)(UK)	
	3-081-196-21	MANUAL, INSTRUCTION (HOOKUPS) (FRENCH/GERMAN)(AEP)	
	3-081-196-31	MANUAL, INSTRUCTION (HOOKUPS) (SPANISH/ITALIAN/DUTCH)(AEP)	

Ref. No.	Part No.	Description	Remarks
		HARDWARE LIST **************	
#1	7-682-544-09	SCREW +B 3X3	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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